REPORT RESUMES

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THE 1965 HEAD START PSYCHOLOGICAL SCREENING PROGRAM. FINAL REPORT ON THE DATA ANALYSIS.

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THE SCREENING PROGRAM HAD TWO PURPOSES. (1) IT WAS TO BE USED TO DETECT CHILDREN WITH UNUSUALLY SEVERE EMOTIONAL PROBLEMS AND CHILDREN WHO, BECAUSE OF THEIR SUSPECTED RETARDATION IN INTELLECTUAL DEVELOPMENT, MIGHT NEED SPECIAL EDUCATION FACILITIES. THE DATA FOUND WERE TO BE USED TO IMPLEMENT EARLY DETECTION AND REMEDIAL PROGRAMS. (2) IT WAS TO PROVIDE SOME MEASURES OF COGNITIVE AND PERSONALITY CHANGES WHICH MIGHT BE ATTRIBUTED TO THE EFFECT OF THE ENRICHMENT PROCEDURES USED AS PART OF THE 1965 HEAD START PROGRAM. THE CHOSEN TESTS WERE LIMITED TO THOSE WHICH COULD BE SCORED OBJECTIVELY, WERE SIMPLE TO ADMINISTER, AND WERE SCORED, TABULATED, ANALYZED, AND INTERPRETED BY SOME AUTOMATED MEANS, BECAUSE FEW EXAMINERS HAD PREVIOUS EXPERIENCE IN ADMINISTERING PSYCHOLOGICAL TESTS. EXAMINATIONS WERE CONDUCTED IN APPROXIMATELY 1300 HEAD START CLASSES. SEVEN TO EIGHT WEEKS LATER, ALL TESTS WERE REPEATED WITH APPROXIMATELY ONE-THIRD OF THE CHILDREN. THE CULTURE FAIR INTELLIGENCE TEST INDICATES AN AVERAGE IQ OF 104.9 FOR THE WHOLE STATE OF WEST VIRGINIA. HEAD START CHILDREN AT AGE SIX SEEMED TO BE AT AN AVERAGE INTELLECTUAL LEVEL WHICH WAS NOT SIGNIFICANTLY BELOW THEIR MIDDLE-CLASS PEERS. THE COLOR PYRAMID TEST SUGGESTS HIGH INCIDENCE IN THE HEAD START GROUP OF SUSPECTED AUTISTIC THINKING, DEPRESSION AND ASOCIAL BEHAVIOR, CURRENT EMOTIONAL DISTURBANCE, EMOTIONAL RETARDATION, AND EXTREME ACTING-OUT BEHAVIOR. ASSESSMENT OF CHANGE PRODUCED BY THE 1965 HEAD START PROGRAM IS RELATIVELY INCONCLUSIVE. (MANY TABLES ARE INCLUDED.) (EF)

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Final Report on the Data Analysis
conducted under a contract between the

West Virginia Office of Economic Opportunity

and

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K. Warner Schaie
Human Resources Research Institute
West Virginia University
March, 1967

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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A. INTRODUCTION

The purpose of conducting a psychological screening program for the children participating in the 1965 Head Start Project was twofold. The first purpose, as with any screening program, was the detection of children with unusually severe emotional problems as well as those who because of their suspected retardation in intellectual development might need special education facilities. These aspects of the program first suggested by personnel in the West Virginia State Department of Mental Health were thought to go along with other screening operations conducted with the Head Start children. The objective of the screening operations then was to provide some data which could be used to implement early detection and remedial programs. Also, in view of the scarcity of facilities capable of dealing with children with special problems, it was seen useful to determine some baseline data which might be helpful in order to assess the need for additional facilities.

The second aspect of the screening program was to provide some measures of cognitive and personality changes which might be attributed to the effect of the enrichment procedures used as part of the 1965 Head Start Project. The purpose of the program in relation to the second objective was not to provide carefully controlled conditions to assess specific program components but rather to determine whether some global measures administered at two points in the program would lead to recognition of gross effects.

A number of practical limitations had to be considered in this study. These included, first of all, a treatment period restricted to a relatively short time span. In view of the scarcity of professional personnel in the region, it was necessary to use untrained examiners to administer large numbers of tests. Further restrictions were imposed by the fact that with children of the age and limited background included in Operation Head Start, individual test administration was mandatory even though our examiners had a limited amount of training in carrying out these operations. The selection of instruments to be used and the design of the study was therefore influenced by these practical limitations, and it is felt that within these restrictions it was possible to carry out an effective large scale screening program, details of which will be reported in the following pages.

Because of confusion introduced by the simultaneous conduct of the statewide testing program and the materials required by OEO on a nationwide basis, some of our materials were misdirected and lost. As a result, we do not have available results on the tests administered in Doddridge and Preston Counties. Moreover, due to the late arrival of the personality test materials, the latter were not administered in Calhoun, Jefferson, and Upshur Counties. Consequently, results will be reported on children in 53 counties for the ability test and for 50 counties for the personality test data.

B. PROCEDURE

1. Test Materials.

Because of the restriction imposed by the level of personnel which was used for test administration, it was necessary to select instruments which can be scored objectively, are simple to administer, and where most of the scoring, tabulation, analysis and interpretation can readily be automated.

a. The measure of cognitive ability. After critical examination of the literature, it was decided that a measure based on a single homogenous type of item would not be suitable. On the other hand there is a paucity of more complex devices, the administration of which could readily be taught to individuals without experience in psychological testing. As a result, the one test which seemed to fit our requirements was found to be the Culture Fair Intelligence Test, Scale 1 (Cattell, 1962) published by the Institute of Personality and Ability Testing. This test seemed a useful estimate of intellectual functioning based on a variety of test items particularly as it was developed to reduce the influence of cultural variables. The Culture Fair Intelligence Test contains eight short subtests which permits breaking the examination into short time intervals. Moreover, four of the subtests in the Culture Fair Intelligence Test have been identified as being relatively culture free while the four others are somewhat culture confounded. This test has previously been used with children as young as three years of age, has age norms available for the population examined in our study and therefore seemed rather suitable for our purpose.

The eight subscales of the Culture Fair Intelligence Test cover the areas of substitution, classification, mazes, selecting named objects, following directions, wrong pictures, riddles and similarities. Of these subtests the substitution, classification, mazes and similarities items are considered culture-fair while the others are considered to be somewhat culture confounded. This permits the estimation of separate "culture fair" and "culture foul" measures of intelligence in addition to the global index and opens the possibility of differential analysis.

Another reason for selecting a test of the culture fair type was to make sure that we did not simply study cognitive function as related to school achievement. Although the long-range goal of the Head Start Program may well be related to incrementing school performance on the part of the deprived children, the purpose of a screening program must be to identify those children who are not just deprived in terms of the school related intellectual functions but who are retarded in a broader sense.

The basic rationale for the Culture Fair Intelligence Test is presented in the early work by Cattell and his associates (Cattell and Bristol, 1933; Cattell, 1940; Cattell, Finegold and Sarason, 1941). In general the present test was selected from subtests used in the Binet, the Merrill-Palmer and other scales suitable for children in the 4 to 8 year-old range. The items retained for the present test were those which had the highest saturation on the general ability factor, were free from overlap due to special abilities, are attractive to children and which seem to be suitable for rapid administration.

b. The personality assessment technique. Most of the approaches to the personality assessment in young children assume the necessity of detailed studies conducted by highly trained professional persons.

Because of the obvious difficulties, very little work has been done on the development of objective types of test items which would be suitable for rapid administration by relatively unskilled personnel. One of the exceptions which has recnetly had some considerable psychometric attention is the Color Pyramid Test (Schaie and Heiss, 1964). This technique is completely culture free, does not require verbal behavior on the part of the subject, and can be easily taught to untrained examiners as well as being suitable for machine scoring. The Color Pyramid Test consists of a set of colored one-inch-square chips in 24 different hues and a pyramid containing 15 squares. The subject is instructed to arrange colored chips on the pyramid to make it as pretty as he can and several trials are required for greater reliability under different conditions of instruction. The Color Pyramid Test has been related to various pathological criterion groups as well as to personality traits in normal subjects (Schaie, 1963). It was here included to permit a rough screening operation to identify children likely to show deviant personality traits. As part of the administration of the Color Pyramid Test a simple test of color vision testing for green-red color blindness was also administered.

2. The Examiners.

The personnel used to examine the children consisted of Operation Head Start teachers and other volunteers in the program. Examinations were conducted in approximately 1300 Head Start classes with from one to two examiners involved in each instance. Only few of the examiners had had any previous experience in the administration of psychological tests or other screening techniques. Consequently, each examiner was given a very detailed set of instructions which is given in Appendix I. No previous experience was expected from any examiner and little or no judgmental activities were required in the process of the examination. Each examiner handled anywhere from five to fifteen children during an examination period which might run from three days to a week, depending on the number of children examined by the individual examiner.

Those of the examiners who participated in the Head Start teacher training session at West Virginia University were given a two-hour period during which the test material and the instructions were carefully discussed. The participants in the training session moreover, were asked to transmit information and test materials to the individuals who actually carried out the testing procedure. Throughout the examination period, some limited consultation via telephone was available to the project directors in meeting the problems which arose locally.

No scoring was required by any of the examiners except in terms of indicating the items which had been passed or failed. The instructions carefully indicated the objective criterion for a pass or failure which are quite straightforward which can be seen from the manual for the Culture Fair Intelligence Test. On the Color Pyramid Test not even such limited judgment was required since the only task of the examiner here is to record the particular colored chip (or the code number therefor) which a child places on a given field of the pyramid. Likewise, the administration of the color vision test merely consisted of recording the number of errors (if any) which a given child made. All materials, after having been identified with the children's name and Head Start code numbers, were then transmitted to the research project.

After examination of the test materials, it appears that most examiners quite carefully followed the instruction given and that the rate of error and the loss of materials due to this procedure was no greater than one would expect in the typical kind of group testing sessions which one would administer in a similar program for older children.

3. Test Administration.

The test battery consisting of the Culture Fair Intelligence Test and the Color Pyramid Test was given to all children enrolled in the 1965 West Virginia Head Start Program beginning with the first day of the second week of the program, and examinations were completed for the first round no later than the end of the third week. All tests were administered individually and examiners made maximal efforts to obtain complete records on all children. It is estimated that no data are available for approximately 5% of the children. These were children who were either absent at the time the tests were given or where their cooperation could not be obtained due to a variety of factors.

Beginning with the seventh week and no later than the end of the eighth week of the program, all tests were repeated with approximately one-third of the children at each Head Start center. At this time also, initial tests were obtained for a number of the children who for one reason or another could not be tested during the first round of the test administration.

4. Test Scoring.

The Culture Fair Intelligence Test was prescored by the examiners as part of the examination. This prescoring consisted merely of entering the number of correct responses which the examiners had recorded for each subtest on the face sheet of the test booklet. These raw scores together with the child's date of birth and the date of the test were key punched on IBM cards. The test scoring program for the IBM 7040 then computed mental ages and intelligence quotients for the total test and also for the "culture fair" and "culture foul" indices summing over the four least and four most culture confounded subtests respectively.

An editing routine then compiled the cards for each child for the first and second test administration and prepared separate tapes containing: 1) the scores on those children who had test-retest scores, 2) a tape on all the tests administered during the first administration and 3) a tape on all the tests administered during the second administration. During this process, editing occurred and mis-matched codes and raw scores out of the permissible range were excluded.

The Color Pyramid Test is scored entirely by the IBM 7040 computer. Each test record is directly punched into a set of seven cards. The computer reads these cards, computes frequency scores for all colors examined and computes the internal consistency of the record. The program punches sets of cards containing all scoring variables as well as a printed report containing the scores, their conversion into sten scores as compared with a table of norms, and the personal identification data necessary for further analysis.

5. Compatibility of Coding with OEO Data.

All West Virginia test material is coded with a number assigned by OEO to each child and our material can therefore be directly collated with the OEO data if desired. In addition, all our material has been county coded to facilitate analysis and to permit the data for the geographical sub-division of the state which is reported in a subsequent section of this paper.

Relations of the data reported here with test materials and other demographic information collected by OEO have not been computed as part of this project but the data are in a form which would permit such comparisons.

C. ANALYSIS OF RESULTS

1. The Measure of Cognitive Ability.

a. The Screening Program. As a result of the initial screening program conducted during the second week of the Head Start sessions, a total of 13,112 scorable Culture Fair Intelligence Test records were obtained in the 53 counties which returned test materials for analysis. This represents a loss approximately 10% of the total tests given, which is not unusual for a mass screening operation. However, it should be kept in mind that the loss is not likely to be random, so that our estimates of the number of children in need of special services may well be low while the estimates of intellectual functioning may be inflated.

The quality of the test records seemed generally high. However, there seems to be a general trend for the examiners to give credit and record children's responses as passing when in doubt. At least this seems to be the most parsimonious interpretation of the rather high variability of test scores and the fact that the state averages for the Head Start group appear to be quite high for children coming from culturally deprived environments.

b. The Overall Estimates of Intelligence. The Culture Fair Intelligence Test provides an over-all index of ability analogous to that provided by other individual intelligence tests. As indicated in our discussion of the test materials, it is also possible to estimate two additional indices. One of these we have called the culture-fair quotient which is based on the four least culture-confounded sub-tests, and the other is a "culture-foul" index based on the more confounded test items. Table 1 gives Means and Standard Deviations by County for all three of these indices. This table also gives the number of scorable records obtained during the screening operation in each county and the average chronological age of the children. The latter with a state average of 6.17 years, incidentally seemed quite uniform throughout the state with county means differing by no more than three months.

The most interesting finding of the screening operation is, of course, the fact that mean IQs on a reasonably culture fair test given to a deprived group are at or above the normative values provided by the test authors for a general population sample. The average for the entire state is 104.9, but there is considerable variation across the state with mean IQs ranging from a low of 92.5 in Taylor County to a high of 125.3 in Summers County. The latter value is somewhat suspect as being influenced either by special selection of children or difficulties in test administration since the Summers County sample also has the highest Standard Deviation of all sub-groups.

Of particular interest further is the difference between the "culture-fair" and "culture-foul" indices. Contrary to our expectations, children systematically gained higher scores on the culture-confounded than on the culture-fair materials. The statewide mean IQ for the culture-fair index was 101.9 as compared with a culture-foul index of 109.2. This finding, which held in all but two of our 53 sub-samples, suggests that the penalties of belonging to disadvantaged groups, at least in West Virginia, do not result in relatively poorer test performance on culture-confounded materials. Perhaps the evidence in the literature to the contrary refers to test-content which is specific to school-oriented tasks occurring at later ages. Indeed the nature of the cultural deprivation may be much more specific than has hitherto been suspected.

c. Performance on Specific Test Content. It is of interest also to consider the relative performance on the different tasks used on the Culture Fair Intelligence Test. Relevant means and standard deviations have been listed in Table 2. From the statewide averages reported in this table, it may be noted that the Head Start children performed best on the sub-test which involves following directions (an apparently quite culture-confounded task) while they performed relatively poorest on Mazes (which had been presumed to be culture free) and "Wrong Pictures" which is a culture-confounded task. The second highest performance on the other hand was on Similarities which is an abstract relatively culture free task. The above pattern seems to be quite systematic although there are slight pattern variations among the sub-samples.

The data on sub-test performance cast further doubt on the exact meaning of the notion of a culture-fair test and again suggest that the presumed difficulties which disadvantaged groups display on group intelligence tests may be rather task specific. Detailed further studies of this problem are certainly in order.

d. Screening Children Likely to be in Need of Special Services. We have thus far restricted our analyses to overall descriptions on the intellectual ability of the Head Start participants. The purpose of a screening program, however, is to identify those individuals who may need further attention. Towards this end counts were made of all individuals with IQs below 70 who, especially in view of generally positive scoring biases, might be considered as most likely requiring special services. An additional count was made of all children in the IQ range from 71 to 80. These are the children who because of their low functioning will probably require remedial services at some point in their school career even though they will probably remain in the regular classrooms.

Table 3 provides the number of children in each county as well as the proportion of the total number of scorable records separately for Total IQ, and for the culture-fair and culture-foul indices. Here it may be seen that for the total group more than 1800 children, or approximately 15% of all children tested, some kind of remedial service would seem likely to be needed on the basis of the children's level of general functioning. If we take the culture-fair estimates to be more direct measures of abstract ability and therefore consider them to be our criterion of basic ability, we must then consider even higher numbers. If the latter criterion is used, we have identified a total 2471 children or 20.3% of those examined who will be in need of remedial services. If we considered the culture-confounded estimate, then our estimate would be a total of 1899 children or 15.7% of the entire group.

Again a great deal of variability exists among the counties in the proportion of children suspected of functioning at a low level of intelligence. On the total ability index the proportion of children with an IQ of 70 or below range from a low of 1% for Jackson County to a high of 13.6% in McDowell County. The proportion of children in the IQ range from 71 to 80 similarly varied from a low of 1.4% in Pleasants County to a high of 20% in Brooke County. Our data, of course, cannot answer the question as to whether this wide range is a function of actual differences in the distribution of talent, whether it represents failure to turn in records for children of low ability in some areas, or whether individual programs differed in their decision to accept children who had been identified in their community as being particularly slow in their development. All these questions require further detailed investigation.

Variability among counties is even greater for the separate estimates of culture-fair and culture-confounded ability indices. For the culture-fair index, the proportion of children with an IQ below 70 ranged from 1.9% in Wirt County to a high of 18.3% in Brooke County. Children with an IQ between 71 and 80 on the culture-fair index ranged from none in Wirt County to 21.5% of the Wetzel County group. Similar ranges for the culture-confounded index for children with an IQ below 70 are from 1.1% in Mineral County to 15.5% in Monongalia County; and for children with an IQ between 71 and 80, from 2.1% in Pocahontas County to 15.7% in McDowell County.

e. The Evaluation Program. As part of the psychological screening program, it was hoped that some information could be informed which would be relevant to an evaluation of the effects of the Head Start program upon the performance of disadvantaged children as would appear on measures of general ability. To achieve this objective it was decided to re-evaluate a random third of all children during the seventh week of the Head Start program. Throughout the State of West Virginia a total of 5,642 children were tested during this second round. There was great variability, however, between areas upon procedures followed for the second round. Thus, several counties re-tested all their children, some re-tested none, while other counties tested some children for the first time during the second round. In order to avoid any misleading data based on small and peculiar samples, our further analysis by counties will be reported only for those counties where at least 50 children were tested during the second round. Table 4 lists means and standard deviations for the second round samples.

Our comparisons will first be reported on the total memberships of the first second-round testing. In selected instances we shall then attend to a direct comparison within the smaller groups of individuals for whom test-retest data are available. For the State as a whole, these data suggest that changes in cognitive level have not occurred. There is an increment of about 4 IQ points for the total ability index and of seven and six points respectively for the culture-fair and culture-foul indices. Because of the large number of subjects, these changes can be considered stable, but they must also be attributed most parsimoniously to the effect of practice on the test.

There is, thus, no substantial evidence that the Head Start program had any substantial effect in modifying overall cognitive functioning when data are analyzed on a state-wide basis. However, when data are considered by counties, somewhat more encouraging results emerge. Table 5 lists the mean difference in IQ points between the first and second testing rounds for each of the counties where at least 50 children were tested towards the end of the Head Start program. At least three different patterns appear. In a good many counties there is an increment or decrement of a few IQ points suggesting merely sampling deviations and no significant change. Another group of counties show overall gains of a magnitude suggesting change beyond that expected on the basis of practice effect. The interpretation of finds here are, of course, limited by the problem of systematic attrition. That is, the sample tested during the second round may include only some of the more able children in the respective Head Start centers. Of most interest, however, is a third group of counties where there are differential changes for the culture-fair and culture-foul indices. Since these measures were obtained in the same children, and since the differences are generally in the direction of substantially higher gain on the culture-foul than the culture-fair indices, it seems reasonable to conclude that this provides positive evidence of the attainment of cognitive changes in the anticipated direction. Positive findings of this type were obtained for the samples from Barbour, Hampshire, Hardy, Logan, Mercer, Ohio, Pendleton, Raleigh, Upshur, Webster and Wetzel counties.

Table 6 provides means and standard deviations for the second-round testing on each of the eight sub-tests. As indicated in our earlier discussion, there was relatively little systematic change here which could be attributed to the effect on the Head Start programs on specific cognitive variables.

f. Analysis of the Test-Retest Data. Two test records on the Culture Fair Intelligence Test are available for each of 4691 children. This number is approximately a thousand below the total number of records for the second testing round which included initial test administrations. Also, of course, it should be kept in mind that while instructions called for a random third selection for the second testing, systematic attrition might bias the selection of children who were actually re-tested. In order to avoid artifacts due to peculiarities introduced in small sub-samples, analysis of the test-retest data will be confined to those 18 counties where one hundred or more sets of test-retest records could be obtained.

Table 7 gives the mean scores and average gains (or losses) for these eighteen samples for the Total IQ and the culture-fair and culture-foul measures. Comparison of the data in this Table with Table 1 clearly suggests that there has been attrition of some of the children of lower ability in at least several counties between the first and last testing. Nevertheless when the gains or losses shown in Table 7 are compared with those in Table 5 it will be seen that the latter does not seriously over estimate gains. The most interesting finding of generally greater gains on the culture-foul than the culture-fair measure are conformed by the analysis of the test-retest data. It can be seen that for fourteen of the eighteen samples, the culture-foul index shows greater gain. This is in the expected direction if the objectives of Head Start were appropriately defined and is a rather encouraging finding. Indeed it might well be profitable to compare in retrospect the program attributes in those counties where there was no gain or greater gain for the culture-fair component of the Culture Fair Intelligence Test with those counties where the excess in gain of the culture-foul to the culture-fair component was greatest. If this were to be taken as an index of effectiveness in achieving movement of the children towards culture-related intellectual competence, then of the eighteen larger county programs, one would have to consider the Mercer, Harrison and Webster county programs as most successful and the Fayette, Grant and Monroe county programs as least effective.

Availability of the test-retest data also permits the estimation of the reliability of our instrument. Reliability data for the total, culture fair and culture foul IQs, after Spearman-Brown correction, are given in Table 8. To avoid artifactually high or low reliability coefficients due to small sample size, we have again confined our data presentation here to the eighteen counties for which samples in excess of one hundred children were available. Reliabilities for the total IQ score range from a high of .85 for the Grant county sample to a low of .48 for the Mercer county group. Reliabilities for the culture fair score range from .79 for Summers county to .45 for Mercer county. Similarly, reliability coefficients for the culture foul index range from a high of .81 for Grant county to a low of .35 for Mercer county. Median reliabilities are .72, .61, and .64 respectively, for the total, culture foul and culture fair measures. These reliabilities, in general seem quite respectable considering the use of largely untrained examiners and the often most unfavorable testing conditions.

2. The Personality Assessment Data.

a. General comments. The Color Pyramid Test (CPT) used as the means of obtaining personality data was typically administered after the data on the intelligence measures had been obtained. Thus administration here occurred usually at the end of the second week of Head Start classes and in some instances due to late arrival of materials was postponed until the third week. Scorable Color Pyramid Test records were obtained on a total of 11,496 children representing data from Head Start programs in fifty of the fifty-five West Virginia counties. In the counties where the CPT was administered this represents approximately 95% of the children on whom ability data were obtained. Attrition on the personality data is likely to be much more random than on the intellectual variables since no difficulty was reported in administering the clearly culture-free and functionally simple task to the children. Also, it was noted that loss from erroneous recording was quite minimal and once an effective computer-scoring program had been devised, such errors could be automatically detected and uninterpretable records were then discarded.

The child's task on the CPT is to arrange colored chips on a fifteen field pyramidal surface choosing from a supply of chips in 24 different hues. Scoring of the test can proceed by counting the frequency of choice for individual hues or by combining them into ten major color groups. The scoring decision depends largely on the desired level of internal consistency, since the color scores have a greater range they will typically have higher reliability. An empirical analysis of internal consistency showed that the individual hue scores were below an acceptable level internal consistency and it was therefore decided to base the data analysis primarily upon the scores for the ten major colors.

To permit appropriate comparisons all raw frequencies were converted into Sten (Standard Ten) Scores with a Mean of 5.5 and a standard deviation of 2, by table look-up using the youngest age group (age 6 to 8) in the test manual.

b. Overall personality description. It is not possible to present as part of this report a complete description and presentation of the rationale used in drawing inferences from the results of the Color Pyramid Test. The reader interested in these matters must be referred to the test manual (Schaie, & Heiss, 1964). In describing the results of the personality test data, however, the hypothesized meanings of preferences for the various color dimensions will be indicated as it becomes necessary for understanding the results of this study. One of the first matters of interest is to indicate in what ways, if any, the average data for the Head Start population differ from normative samples obtained from a cross-section of the general population of children. Our data permit such analysis for the entire state and for each participating county at two levels. In the CPT the child is asked to perform the color choice task under two conditions of instructions. Under the first instruction he is asked to construct a pyramid which is as pretty as he can make it. It is assumed that under this instruction the nature of his preference will give an insight into the most salient traits related to affect and impulse control as they now prevail in the child's personality structure. The second instruction is to construct a pyramid which is as "ugly" as possible. Under this condition it is assumed that the child's preference will tap aspects of his personality structure which are rejected at the present time but which consequently must be viewed as important secondary modes of impulse control which might become of increased importance if present adjustment processes shift under increased psychological stress. Significant discrepancies between performance under the two instructions moreover will give some clues as to the stability of current modes of impulse control and will hint the direction of shifts which might be expected.

Tables 9 and 10 respectively give the means and standard deviations in sten scores for the pretty and ugly pyramids tabulated separately by county. Based on the sample sizes of the norm groups and the Head Start samples it can be concluded that at the 5% level of significance a sample mean will indicate a significantly high preference for a given color if it exceeds a sten of 6.00 and a significantly low preference if it falls below a sten of 5.00. In the following paragraphs an attempt will be made to sketch the manner in which the Head Start children as a group seem to differ from norms derived from the general population.

i. Red. Preference for this color represents impulsive affect and in its extreme form is characteristic of the presence of uncontrolled explosive impulsivity and consequently would be found in children likely to be described as "acting out." There seemed to be a general tendency for the mean on this variable to be at or above the norms. Significantly low means, however, were found in four samples. These were the ones from Barbour, Mineral, Tyler and Webster counties. Under the ugly condition of instruction sample means vary about the norms and in a few instances are high, reflecting the likelihood that further development in the direction of uncontrolled impulse management is possible but not typical of the total Head Start group.

ii. Orange. This color is said to represent extroversion and externalization of affect. But unlike the preference for Red, we are here not talking about explosive behavior but are rather concerned with the ability to become involved with other persons. Our samples are generally at or slightly below the expected values but seven of our samples are significantly below the comparison means. On the other hand under the "ugly" condition of instructions, 32 means were significantly high. This finding suggests a tendency on the part of the Head Start children to divert their expression of emotion into inter-personal channels under conditions of stress. Such a response tendency has its adaptive attributes. It also suggests the relatively high prevalence of person rather than object directed impulse investment at an early age in these Appalachian children.

iii. Yellow. High preference for yellow represents an involvement in the environment which is more object rather than person oriented. On the other hand, unusually low preference for this color is deemed to suggest inability to express impulsive needs in a rational socialized manner. The latter seems quite characteristic of our population since 43 of the 50 samples scored significantly low on yellow. Interestingly enough, preference for Yellow increases under the alternate condition of instructions where 10 samples scored significantly above the comparison means. Perhaps in conjunction with the statements made above we might conclude here that mild stress may be required for these children to elicit increased interaction with the person as well as object-related aspects of their environment.

iv. Green. This color is indicative of the regulatory homeostatic aspects of emotionality. An extremely high preference reflects individuals who are overwhelmed and flooded by emotional stimuli, while extremely low scores reflect low sensitivity and emotional flattening. None of our samples were significantly low, suggesting that rigidification and freezing of emotions may be a salient characteristic of these children. Under the "ugly" condition, however, means varied about the expected values with only one being significantly high (Hampshire) and one significantly low (Tucker) under conditions of increased stress.

v. Blue. In psychoanalytic terminology, blue would probably be characterized as an index of ego strength. It also seems to have some bearing on the childrens' general energy level, where high Blue is characteristic of well-controlled efforts and where low scores represent low energy, erratic and uncontrolled behavior. Scores on this index are generally at the normative levels with only four samples being significantly below the norms. These were samples for McDowell, Mercer, Pocahontas and Roane counties. These findings would support the data from the intelligence measures suggesting that these children on the average do not seem to be at a significant disadvantage with respect to cognitive function and the ability to respond in an organized well-controlled manner. It is quite interesting further that under the "ugly" condition 15 samples score significantly above the comparison means, again suggesting the possibility of the beneficial effects of restructuring accustomed response patterns for these children.

vi. Purple. Preference for this color seems to be associated with severe internalization of affect, anxiety and tension. High scores typically represent the presence of explosive turmoil within the individual.

For the total group this index of psychopathology is quite low with seventeen samples below the comparison means. Likewise, internalization of affect seems relatively unimportant as an alternate mode of impulse control since most samples vary about the expected values under the "ugly" condition. There seems to be wide variability, however, and one sample (Pocahontas) has a mean which is significantly above the norms in the pathological direction.

vii. Brown. Elevated brown preference represents the presence of strong primitive impulses indicative of emotional dullness and persistent but ineffective activity. Brown has been found to be characteristically high in the color preference patterns of the mentally retarded. On the other hand, low brown preference has been associated with a low energy level. For the Head Start children, sample means vary about the expected level, with only one sample being significantly high (Webster) and one sample being significantly low (Wirt). Under the alternate testing condition Brown is significantly low for 38 of the samples, implying the possibility of reduction in energy level of impulse expression under stress.

viii. White. This color is rarely used by most subjects. When it is used it implies unconventional response tendency and in its extreme form loosening reality control and autistic thinking. This index is at or above the norms for our samples and 13 samples have means significantly above the comparison group. These findings also hold for the alternate instruction, although here only 6 samples exceed the norms significantly. For the Head Start population as a whole the most parsimonious interpretation would be the speculation of a high incidence of schizoid personality traits and high incidence of autistic thinking.

ix. Gray. Preference for this color indicates the damping of affective needs and the consequent repression and denial of feelings. High incidence of gray is characteristic of neurotic personality traits. This index was significantly low for 38 of our Head Start samples. The relative incidence of neurotic behavior as a function of social class is, of course, well known and these data confirm previous findings of low incidence of neurotic traits in an essentially lower class population.

x. Black. Preference for black is said to be indicative of inhibition and blocking associated with feelings of inadequacy and worthlessness. The behavior associated with extreme black scores may range from severe depression to autistic types of asocial behavior. Mean scores for this variable are typically at or above the mean with ten samples significantly in excess of the mean. On the other hand, under the "ugly" instructions, 41 of the 50 samples are significantly below the expected values. This latter finding, however, may relate to the finding that black is also an index of inhibitory controls. Thus increased stress may for our samples tend to result in a reduction of inhibitory controls.

In summary then, we may describe the most salient group characteristics of the Head Start children as being relatively withdrawn, having some difficulty in becoming emotionally involved with the objective aspects of their environment, showing some tendency in the direction of autistic thinking and emotional flatness with inhibition and blocking in the expression of feelings. On the other hand there seems a low tendency of neurotic denial and repression and relatively low internalization unacceptable feelings. When these of affect and impulse control are challenged under stress our data suggest movement in the direction of more constructive emotional involvement at both inter-personal and object level and the increased utilization of objectively oriented modes of affect control. Such movement would also be accompanied by a reduction in inhibitory controls and a drop in the energy level of primitive impulse expression.

c. Screening Children Likely to be in Need of Special Services. The above comments have been designed to give some indication as to the general personality characteristics of interest in the Head Start population. As with the intelligence test data, our primary purpose, however, was the identification of children with particular types of difficulty who might require future special attention. The CPT can conveniently be used for such screening purposes attending to several parameters. Most useful here would seem to be extreme scores on the color frequencies under the "pretty" sorting instruction.

As has been noted in the previous section, extreme scores on four of the color indices (orange, yellow, green and blue) will represent generally favorable personality traits. The remaining six indices, however, will reveal likely presence of psychopathology. In order to use an objective screening criterion, it was decided to consider a child's sten score of 9 or 10 as indicating the possibility that such an extreme score might indicate deviant behavior. In this context, the reader should be alerted to the fact that sten 9 and 10 will include the most extreme 6.7% of the normative population. In other words, if the proportion of children falling into the extreme scoring categories is 6.7% or less than our Head Start samples contain no more pathology than is characteristic of a normative sample of the general population of their age. On the other hand the finding of larger proportions of extreme scores would indicate the prevalence of special problems in the Head Start group. Extreme scores on six color indices have been tabulated and are listed by county in Table 11, in each instance giving the proportion of the sample showing such extreme scores.

i. Emotional Disturbance. Extreme scores on Purple are taken to be evidence of internalization of affect and intensive intra-personal turmoil and anxiety. Such extreme scores are found with high frequency in children who have difficulties which cannot readily be handled in the ordinary school context and may require special facilities including residential treatment. Extreme scores on Purple were found for a total of 1324 children or 11.5% of the total population examined. By counties, incidence of suspected emotional disturbance ranged from a low of 4.0% in Braxton county to a high of 23.6% in Pocahontas county. The proportional incidence of suspected emotional disturbance equalled or exceeded expected values in 47 of the 50 counties for which data are available and for the state as a whole suggests that the prevalence of emotional disturbance may be approximately twice as great in the Head Start population than in the comparison group which represents a cross-section of children from the general population.

ii. Emotional Retardation. Incidence of extreme scores on Brown may be taken to represent primitive impulse expression most typically associated with individuals who are emotionally retarded. Thus children showing extreme scores in this category may be assumed to require special services either because their emotional development is retarded along with their limited intellectual development, or who in spite of relatively normal intellectual development are emotionally at such a primitive level of development that for educational purposes such children must be considered to be functionally retarded. For the state as a whole our screening program identified 1242 children with extreme sten scores on Brown, which number represents 10.8% of the total population. Proportional incidence by county ranges from 1.8% for Wirt county to 18.6% for Webster county. Again 48 of the 50 samples show a proportional incidence which equals or exceeds the expected values. On this index of psychopathology it may be said that the incidence on the Head Start group amounts to approximately one and a half times the number of children in the general population who would obtain extreme scores.

iii. Acting-out Behavior. High scores on Red were said to reflect explosive externalization of affect. Consequently children with extreme scores on Red may be predicted to be likely candidates for special attention in the school setting for disciplinary reasons. For the entire Head Start population 1296 children were identified as having extreme scores. This represents 11.2% of the total, or an overall incidence of suspected acting-out behavior approximately one and a half times the number expected in the general population. The proportion of children with extreme scores on Red ranged from a low of 4.6% in Webster county to a high of 21.3% in Ohio county.

iv. Autistic Thinking. Extreme scores on White are likely to identify children with unconventional autistic thought processes such as are likely to occur in individuals with schizoid personality patterns who receive much of their gratification in fantasy and may develop increasingly loose reality ties. Such children are rarely troublesome in the class-room, but they are likely to perform below their level of ability. Unless such children are identified early and given special attention, they may be expected to make rather marginal adjustments and represent the group of children some of whom will represent the bulk of admissions to state hospitals in early adulthood. The total Head Start group yielded 1651 children with extremely high White scores or a proportion of 14.3%. The incidence of suspected autistic thinking and consequent high likelihood for eventual hospitalization is disturbingly high in this group. It is better than twice as great as in the comparison norms and the proportional frequency equals or exceeds expected values in all but one county. Proportional incidence ranges from 5.3% in Ohio county to 22.5% in Roane county.

v. Depressive and Asocial Behavior. This is the group of children who show extreme scores on Black which has been associated with impulse blocking and severe feelings of worthlessness and inadequacy. Such children are likely to come to the early attention of school authorities because they either fail to cope with the school situation or react in an autistic manner which is generally unacceptable in the normal school setting. Such children therefore will require early special attention and mental health services. The incidence of extremely high Black scores was 1722 children or 14.9% of the total sample; a proportion more than twice as great as in the comparison norms. Proportional frequencies for all counties equalled or exceeded the expected values and ranged from a relative low of 7.0% in Marion county to a high of 27.1% in Brooke county.

vi. Neurotic Traits. The last index to be discussed is the incidence of extreme scores of Gray which represents neurotic denial and repression. Children with extreme scores here would appear to be the prospective clients of child guidance clinics functioning in the traditional psychotherapy model. It is of great interest and of obvious significance for the development of mental health services that the incidence of children with extreme scores on Gray is limited to a total of 690 of 6.0% of the total group of children. Thus the incidence of suspected primary neurotic traits in the Head Start population is actually slightly less than in the comparison group. The range of high scores on Gray by counties is from 1.4% for Pleasants county to 13.1% for Pocahontas county.

In summary, our screening program suggests that the statewide incidence of suspected autistic thinking, depression and asocial behavior, all characteristics which may require eventual institutional treatment, may be almost twice as high in the Head Start group than in the general population. Incidence of suspected current emotional disturbance, emotional retardation and extreme acting-out behavior, conditions which would seem to require the use of special educational and mental health services, appears to run at about one and one half times the normal rate. Finally, the incidence of neurotic traits likely to be amenable to traditional psychotherapeutic intervention, seems to occur at about the same rate in the Head Start group as in the general population. Substantial geographical discrepancies in the incidence of these indices of pathology, moreover, warrant detailed studies of local patterns as part of planning for augmented mental health services.

d. Evaluation of Personality Change. The Color Pyramid Test was re-administered to a total of 5479 children during the seventh or eighth week of the 1965 Head Start program, typically five weeks after the first administration of the CPT to a random third of the children originally tested. In some county programs, however, only a few children, or children who had not previously been examined were tested during the second round. Consequently, the data to be presented in this section, are based on the samples from those twenty-six counties where re-test data were collected on at least a third of the original sample and where the re-test sample exceeds a minimum of one hundred subjects. Table 12 and 13 present the means and standard deviations for the second round samples on the color scores of the CPT under the "pretty" and "ugly" pyramid instruction.

It is of considerable interest to examine the question whether the Head Start program has been instrumental in producing shifts in the modes of affect and impulse controls. With the typically limited reliability of personality assessment devices used with children (and our instruments are no worse or better than the average with a median internal consistency of .50) it would be hazardous to make too much of changes found in any given child. Our analysis will therefore direct itself to examine changes in group means from the first to the second testing round. With the sample sizes employed we can assume that a change which is significant at or beyond the five per cent level of confidence has occurred if the difference between group means over the two test administration amounts to 1/2 of a Sten score. Tables 14 and 15 give the mean differences for the pretty and ugly pyramid color score means.

The evidence of changes in personality traits associated with affect and impulse control as a consequence of the Head Start program is very confusing. Although there are more significant differences between the two test administrations then would be expected by chance alone, it is also found that significant differences do not always move in the same direction for the different samples. This, of course, may simply mean that different emphases in the county programs may have had differential impact and it would be important for program analysis to consider the interaction between program characteristics and changes in children's trait patterns. It must also be kept in mind that the direction of the change may be related to the prior position of the group with respect to the normative value of a given trait.

In spite of all this confusion, it is of considerable interest that significant changes on those CPT indices where high scores represent likely presence of psychopathology (purple, brown, gray, white and black), are all in the direction of lower scores on the second round. This would represent at least some evidence that the Head Start programs may have been instrumental in helping at least some of the children to adopt modes of affect and impulse control which are closer to the cultural norms. These findings, however, are restricted to the results from the pretty pyramids, the measure related to current mode of impulse and affect impression. Changes under the "ugly" instruction are not as clear. These scores which represent currently unacceptable modes of response which may become dominant under conditions of stress showed considerable less systematic change. Noteworthy, however, is an increase in the mean Sten for black which is related to inhibitory affect control and a decrease for Red which is related to explosive acting out of impulses. In both instances these changes are in the direction of the normative means and thus represent favorable change.

It may be concluded then that while the evidence on change in personality traits related to impulse control and affect expression is confused, there is some evidence that those changes which seem to be statistically significant are largely in a favorable direction, suggesting that the Head Start program may well have made a significant contribution to bettering the adjustment of some of the children served by it.

D. SUMMARY AND CONCLUSIONS

As part of the 1965 Head Start program, a psychological screening program was conducted in cooperation between the West Virginia Department of Mental Health and the Human Resources Research Institute at West Virginia University. This program consisted of the administration of an intelligence test, the IPAT Culture Fair Intelligence Test and a non-verbal culture-free personality assessment technique, the Color Pyramid Test. All tests were administered by teachers or aides following simplified written test instructions and all scoring was done by computer.

Scorable test records were obtained for 13,112 children on the intelligence test during the first round of testing conducted during the second week of the Head Start program and 5,642 children were again tested during the seventh or eighth week of the program. On the personality assessment technique a total of 11,496 scorable records were obtained during the first testing round and 5,479 records were obtained during the final testing.

For the state as a whole an average IQ of 104.9 was obtained on the Culture Fair Intelligence Test. This figure may be inflated since teachers may have been generous in giving credit and also may reflect a substantial number of discarded records of children at the lower level of ability who could not successfully be tested.

Of all children tested, approximately 15% attained a total IQ below eighty and would thus be expected to need special remedial services. Great variability, however, occurred between different counties. The personality assessment data indicated the most salient characteristics of the Head Start children to be a tendency of relative withdrawal, difficulty in getting involved with objective aspects of their environment and some tendency in the direction of autistic thinking and blocking in the expression of feelings.

Evaluation of indices from the personality assessment technique which are thought to be predictive of psychopathology resulted in findings of above average incidence of deviant test characteristics. Thus 11.5% of the total Head Start group are suspected of being emotionally disturbed, 10.8% are suspected of being emotionally retarded, 14.3% showed some evidence of autistic thinking and 14.9% showed evidence of emotional blocking and feelings of inadequacy. On the other hand, only 6% (less than the expected value) showed evidence of neurotic trait patterns.

The evaluation of change occurring from the second to the seventh week of the Head Start program did not yield any dramatic results. Nevertheless, there are a number of indications that the Head Start program is likely to have had positive cognitive and emotional effects for at least some of the children. While the over-all gain on the Culture Fair Intelligence Test can be attributed to the effect of practice, there was also an interesting differential gain. That is, in a substantial number of programs there was significantly greater gain on the relatively culture-confounded parts of the intelligence test than on those parts which are quite culture-free. This would indeed give some evidence for the construct validity of the operations of a program which is designed to bring deprived children closer to the cultural norms.

The evidence for successful impact on personality variables is much more confused. But again there is some evidence to suggest mild movement in the direction of the culture norms on personality variables which involve acceptable modes of affect expression and impulse control.

In summary, it may be said that the West Virginia Head Start children seemed at age six to be at an average intellectual level which was not significantly below their middle-class peers. On the other hand this group seemed to contain a larger proportion of children suspected of requiring special educational services and from one and one half to twice as many children suspected of requiring mental health services than would be true for the general population. Our assessment of changes produced by the 1965 Head Start program are relatively inconclusive, but all evidence of change is certainly in the positive direction.

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Table 1

Means and Standard Deviations on the Indices of Mental Ability for the General Screening Test

County	N	Age in Years		Total IQ		Culture Fair IQ		Culture Foul IQ	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	118	6.16	.32	107.29	27.98	102.91	27.53	113.01	32.48
2 Berkeley	227	6.14	.30	98.30	20.31	97.08	22.32	100.50	24.05
3 Boone	226	6.14	.32	106.28	27.21	103.10	28.33	110.95	31.48
4 Braxton	221	6.17	.30	103.31	20.02	99.02	21.20	109.02	24.66
5 Brooke	60	6.12	.32	94.10	15.60	87.62	15.79	101.66	20.83
6 Cabell	528	6.13	.31	104.75	23.86	104.83	26.02	105.76	28.00
7 Calhoun	83	6.20	.40	102.55	21.61	99.52	22.14	106.96	25.49
8 Clay	115	6.21	.32	117.43	40.35	112.13	39.91	123.64	43.84
10 Fayette	363	6.17	.30	106.96	23.74	104.19	24.26	110.98	28.38
11 Gilmer	91	6.14	.33	112.51	28.88	112.12	33.50	114.38	29.41
12 Grant	124	6.07	.38	108.16	29.09	105.03	30.25	112.26	31.70
13 Greenbrier	307	6.16	.32	106.10	23.97	102.18	26.19	111.84	28.18
14 Hampshire	145	6.18	.31	110.22	27.90	105.58	28.31	116.22	32.81
15 Hancock	83	6.15	.33	103.90	20.20	100.66	22.79	108.27	22.82
16 Hardy	138	6.14	.32	110.13	25.46	109.24	28.67	111.59	28.11
17 Harrison	265	6.16	.34	96.45	20.12	96.35	21.87	97.51	23.30
18 Jackson	97	6.19	.34	106.05	20.14	104.54	22.99	108.92	22.85
19 Jefferson	126	6.19	.32	101.12	24.41	101.65	27.00	101.72	26.95
20 Kanawha	1182	6.17	.31	102.19	22.33	99.88	24.30	106.05	27.30
21 Lewis	167	6.16	.31	106.85	24.54	107.57	27.67	107.29	27.63
22 Lincoln	324	6.16	.33	110.50	29.27	111.07	33.52	111.13	30.94
23 Logan	940	6.17	.35	113.16	30.78	110.08	31.24	117.63	35.40
24 McDowell	657	6.21	.32	92.96	21.25	90.36	21.24	96.53	26.57
25 Marion	175	6.18	.32	100.77	19.36	98.92	22.00	103.44	21.61
26 Marshall	174	6.24	.35	105.65	21.47	100.67	20.67	112.00	27.65
27 Mason	141	6.18	.33	98.89	23.73	98.57	25.36	100.03	26.49
28 Mercer	397	6.25	.36	114.40	29.94	111.08	32.67	119.40	33.70
29 Mineral	278	6.17	.34	114.05	23.97	106.75	26.10	123.05	27.32
30 Mingo	548	6.11	.32	103.70	24.91	99.09	26.17	109.55	29.66
31 Monongalia	308	6.35	.28	101.48	22.47	98.51	23.15	105.32	25.74
32 Monroe	142	6.19	.31	105.83	25.74	101.67	25.46	110.74	30.77
33 Morgan	91	6.13	.30	100.74	16.07	98.87	17.50	104.09	19.48
34 Nicholas	225	6.20	.32	104.27	17.89	101.07	19.85	108.62	22.32
35 Ohio	220	6.18	.29	100.78	20.29	97.55	20.16	105.39	25.39
36 Pendleton	134	6.19	.32	108.04	27.56	105.52	27.68	111.08	31.66

Table 1 (contd.)

County	N	Age in Years		Total IQ		Culture Fair IQ		Culture Foul IQ	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
37 Pleasants	69	6.24	.34	117.03	26.84	122.98	31.74	113.35	29.10
38 Pocahontas	47	6.17	.30	103.79	17.83	101.31	17.06	106.42	25.36
40 Putnam	105	6.13	.30	105.14	19.70	102.38	21.02	109.66	25.71
41 Raleigh	821	6.18	.32	106.89	23.45	100.47	23.42	115.34	29.41
42 Randolph	67	6.20	.31	98.39	22.98	97.44	24.63	99.60	28.07
43 Ritchie	159	6.18	.33	105.13	26.23	105.78	30.66	104.90	27.50
44 Roane	62	6.20	.35	104.37	21.77	97.32	24.05	112.19	26.57
45 Summers	143	6.12	.38	125.33	37.87	117.96	38.72	135.14	43.24
46 Taylor	55	6.08	.26	92.50	16.23	92.58	16.00	93.22	19.98
47 Tucker	109	6.18	.31	104.39	24.17	103.61	24.52	105.61	28.32
48 Tyler	112	6.14	.30	107.13	20.42	103.42	21.81	113.07	27.82
49 Upshur	125	6.17	.28	103.96	16.71	101.34	18.21	107.03	21.14
50 Wayne	586	6.16	.34	106.57	22.15	102.51	22.37	111.78	26.11
51 Webster	155	6.18	.32	108.47	26.77	104.74	24.60	113.48	32.83
52 Wetzel	144	6.21	.36	101.37	22.56	96.04	21.35	107.23	29.93
53 Wirt	53	6.08	.30	108.33	21.44	107.88	18.05	109.16	28.58
54 Wood	341	6.16	.31	97.83	20.90	95.21	23.08	101.17	26.28
55 Wyoming	494	6.17	.33	93.77	33.41	90.24	35.40	98.95	35.50
State Total	12,112	6.17	.36	104.89	25.64	101.91	26.90	109.17	29.98

Table 2

Means and Standard Deviations on the Sub-tests of the Culture Fair Intelligence Test

	1 Substitution		2 Classification		3 Mazes		4 Selecting Named Objects		5 Following Directions		6 Wrong Pictures		7 Riddles		8 Similarities	
County	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
1 Barbour	3.88	2.92	6.95	2.38	5.09	3.06	6.99	2.80	6.96	2.95	5.38	2.41	6.70	2.22	7.28	2.19
2 Berkeley	4.15	2.63	5.71	2.31	4.63	3.02	5.76	2.70	6.24	2.75	4.63	2.21	5.92	2.12	7.00	2.25
3 Boone	4.35	2.83	6.67	2.43	5.17	3.03	6.07	2.86	7.56	2.96	5.18	2.54	6.50	2.38	6.99	2.53
4 Braxton	4.53	2.22	5.95	2.13	4.94	2.90	6.41	2.68	7.25	2.81	5.25	2.17	6.44	2.07	6.97	2.27
5 Brooke	3.00	1.67	5.08	2.00	3.60	2.82	5.62	2.89	6.93	2.53	4.68	1.92	5.77	1.93	6.68	2.00
6 Cabell	5.22	3.07	6.36	2.37	5.03	3.17	6.08	2.69	6.80	2.93	4.90	2.36	6.30	2.31	7.21	2.15
7 Calhoun	4.90	2.47	5.96	2.22	4.84	2.91	6.78	2.34	7.24	2.81	4.43	2.22	6.40	2.37	6.86	2.50
8 Clay	5.05	3.79	7.08	2.81	5.77	3.80	6.84	3.27	8.39	2.88	6.26	3.17	6.96	2.56	7.39	2.72
10 Fayette	4.65	3.12	6.59	2.40	5.42	3.15	6.63	2.78	7.10	2.76	5.45	2.56	6.60	2.42	7.23	2.54
11 Gilmer	5.92	3.34	6.11	2.38	6.38	3.21	7.03	2.51	7.19	2.78	5.34	2.55	6.88	2.25	7.11	2.25
12 Grant	4.94	3.38	6.15	2.31	5.19	3.26	6.65	2.67	7.12	2.67	5.52	2.75	6.08	2.37	6.97	2.08
13 Greenbrier	4.82	3.13	6.33	2.26	4.90	3.00	6.77	2.86	7.54	2.65	5.02	2.24	6.58	2.25	7.03	2.40
14 Hampshire	4.43	2.48	6.72	2.79	5.59	3.36	6.37	3.10	8.22	3.16	5.94	2.41	6.39	2.31	7.50	2.52
15 Hancock	5.04	2.51	5.87	2.23	4.78	3.57	5.93	2.06	7.59	2.28	5.14	2.04	6.52	2.27	7.06	2.03
16 Hardy	4.78	2.87	6.58	2.32	6.28	3.03	6.41	2.75	7.67	2.60	5.44	2.22	6.41	2.03	7.44	2.24
17 Harrison	4.79	2.77	5.21	2.59	4.46	2.92	5.56	2.54	6.13	2.73	4.26	2.16	5.77	2.27	6.98	2.16
18 Jackson	4.98	2.82	6.48	1.97	4.98	3.09	6.74	2.47	7.44	2.60	5.18	2.02	6.21	1.91	7.71	1.87
19 Jefferson	5.03	2.92	6.20	2.36	4.94	3.19	5.77	2.61	6.82	2.81	4.76	2.43	5.64	2.35	6.83	2.16
20 Kanawha	4.79	2.77	6.14	2.40	4.71	3.19	6.29	2.84	7.20	2.83	4.84	2.39	6.00	2.33	6.87	2.27
21 Lewis	6.17	3.74	5.90	2.43	5.28	3.10	6.47	2.86	7.37	2.63	4.83	2.15	5.90	2.05	7.33	2.32
22 Lincoln	6.14	3.89	6.33	2.32	5.69	3.49	6.48	2.83	7.93	2.59	5.01	2.52	6.21	2.40	7.07	2.30
23 Logan	5.36	3.06	6.73	2.59	5.72	3.43	6.97	2.91	7.81	2.90	5.61	2.78	6.70	2.57	7.39	2.59
24 McDowell	3.80	2.52	5.77	2.59	3.65	2.75	5.24	2.71	6.47	3.17	4.15	2.34	5.54	2.33	6.37	2.36
25 Marion	4.08	2.30	6.52	2.23	4.75	2.81	5.77	2.43	7.02	2.52	5.02	1.97	6.10	2.09	7.06	1.92
26 Marshall	4.08	2.05	6.28	2.12	5.66	2.84	7.13	2.69	7.53	2.82	5.17	2.05	6.67	2.34	7.34	2.32
27 Mason	4.13	2.50	5.70	2.46	5.50	3.34	5.67	2.68	6.35	2.92	4.72	2.31	5.72	2.36	6.69	2.41
28 Mercer	5.01	3.31	7.69	2.88	5.99	3.52	7.63	3.10	8.42	2.91	5.63	2.72	6.48	2.48	7.12	2.51
29 Mineral	4.10	2.72	6.31	2.48	6.31	3.54	7.83	2.43	8.15	2.48	6.32	2.20	6.99	2.20	7.84	2.32
30 Mingo	4.30	2.96	6.37	2.44	4.44	2.99	5.97	2.88	7.47	3.02	5.40	2.60	6.06	2.33	6.77	2.42

Table 2 (contd.)

	1 Substitution		2 Classification		3 Mazes		4 Selecting Named Objects		5 Following Directions		6 Wrong Pictures		7 Riddles		8 Similarities	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
31 Monongalia	4.24	2.20	6.13	2.22	5.19	2.54	6.42	2.48	6.76	2.76	5.16	2.04	6.41	2.02	7.36	2.23
32 Monroe	4.49	2.49	6.02	2.11	5.15	3.27	6.37	2.90	7.20	2.83	5.49	2.23	6.60	2.13	7.45	2.38
33 Morgan	3.96	1.61	5.98	2.41	5.27	2.78	6.15	2.62	6.40	2.16	5.22	2.06	6.25	1.81	7.08	2.03
34 Nicholas	4.72	2.62	6.24	1.98	5.22	2.70	6.20	2.42	7.22	2.45	5.79	2.07	6.51	1.96	7.18	2.01
35 Ohio	3.80	2.07	6.13	2.23	5.10	3.06	6.05	2.61	7.56	2.75	4.62	2.25	6.00	2.37	7.00	2.22
36 Pendleton	5.07	2.98	6.23	2.39	5.62	3.24	6.77	2.64	7.31	2.78	5.19	2.66	6.51	2.30	7.29	2.46
37 Pleasants	6.78	2.90	7.57	2.63	6.84	3.40	6.74	2.47	7.58	2.53	5.64	2.28	6.65	2.10	8.03	2.52
38 Pocahontas	4.11	1.70	6.00	1.87	6.26	2.18	6.79	2.35	7.17	2.68	4.60	1.76	6.47	2.35	7.04	2.43
40 Putnam	4.75	2.31	6.35	2.25	4.60	2.65	6.24	2.48	7.15	2.81	5.71	2.11	6.21	1.85	7.57	1.85
41 Raleigh	3.79	2.16	6.67	2.49	5.14	2.99	7.04	2.72	8.25	2.72	5.12	2.47	6.60	2.24	7.21	2.34
42 Randolph	4.54	2.28	5.69	2.34	5.24	3.53	5.57	2.60	6.91	3.22	4.40	2.14	5.75	2.29	6.30	2.47
43 Ritchie	4.94	2.63	6.35	2.63	5.31	3.37	6.36	2.63	7.06	2.98	4.68	2.16	6.10	2.18	7.35	2.59
44 Roane	4.05	2.16	6.47	2.64	4.71	2.69	5.98	2.41	7.73	2.89	5.87	2.28	6.73	2.13	7.05	2.11
45 Summers	5.86	3.44	7.56	2.64	5.48	3.53	7.96	3.15	8.94	3.27	6.49	3.09	7.37	2.73	7.84	2.77
46 Taylor	4.02	1.70	5.27	1.83	3.84	2.53	4.91	2.74	5.49	2.49	4.29	2.15	5.40	2.04	6.84	2.16
47 Tucker	4.60	3.04	6.73	2.38	5.37	3.26	5.53	2.32	6.74	2.93	5.62	2.49	6.37	2.08	7.01	2.16
48 Tyler	4.35	2.03	6.04	1.92	5.99	3.06	7.52	2.85	7.36	2.86	4.75	1.71	6.73	2.18	7.34	2.40
49 Upshur	5.14	2.00	5.46	2.26	5.94	2.97	6.50	2.20	7.82	2.25	4.88	1.80	6.08	2.08	6.88	1.97
50 Wayne	4.38	2.13	6.25	2.21	5.31	2.78	6.78	2.50	7.54	2.48	5.18	2.09	6.63	2.05	7.47	2.03
51 Webster	4.54	2.38	6.89	2.57	5.40	2.65	6.66	2.79	7.66	2.79	5.57	2.49	6.37	2.23	7.31	2.21
52 Wetzel	4.09	2.12	6.53	2.86	4.47	2.83	6.26	2.49	7.01	3.14	5.16	2.45	6.50	2.17	6.51	2.38
53 Wirt	5.06	1.78	6.70	1.95	6.36	2.73	6.26	2.89	7.06	2.62	5.45	2.47	5.91	2.17	6.87	2.07
54 Wood	4.22	2.63	5.78	2.47	4.52	2.92	5.79	2.77	6.70	2.87	4.50	2.19	5.82	2.26	6.57	2.29
55 Wyoming	4.95	2.87	6.26	2.10	5.52	2.89	6.65	2.67	7.25	2.65	5.16	2.22	6.56	2.00	7.30	2.04
State Total	4.65	2.83	6.33	2.46	5.14	3.16	6.45	2.80	7.36	2.86	5.13	2.43	6.32	2.30	7.10	2.34

Table 3

Number and Proportion of Children Suspected to be in Need of Special Services Due to Low Ability

Test I

		Culture Fair				Culture Foul				Total IQ			
		70 or below		71 - 80		70 or below		71 - 80		70 or below		71 - 80	
	County	N	%	N	%	N	%	N	%	N	%	N	%
1	Barbour	5	4.24	18	15.25	8	6.78	9	7.63	7	5.93	8	6.78
2	Berkeley	26	9.56	33	12.13	26	9.56	27	9.93	23	8.46	30	11.03
3	Boone	12	5.31	27	11.95	11	4.87	23	10.18	9	3.98	19	8.41
4	Braxton	12	5.43	33	14.93	10	4.52	14	6.33	8	3.62	16	7.24
5	Brooke	11	18.33	12	20.00	7	11.67	6	10.00	4	6.67	12	20.00
6	Cabell	29	5.49	51	9.66	48	9.09	38	7.20	34	6.44	40	7.58
7	Calhoun	7	8.43	6	7.23	6	7.23	5	6.02	6	7.23	6	7.23
8	Clay	9	7.83	15	13.04	7	6.79	10	8.70	8	6.96	9	7.83
10	Fayette	22	6.06	41	11.29	22	6.06	26	7.16	19	5.23	22	6.06
11	Gilmer	7	7.69	7	7.69	4	4.40	3	3.30	4	4.40	4	4.40
12	Grant	9	7.26	16	12.90	6	4.84	10	8.06	6	4.84	11	8.87
13	Greenbrier	24	7.82	38	12.38	18	5.86	16	5.21	18	5.86	24	7.82
14	Hampshire	12	8.28	17	11.72	13	8.93	7	4.83	12	8.28	11	7.59
15	Hancock	6	7.23	7	8.43	2	2.41	7	8.43	4	4.82	4	4.82
16	Hardy	6	4.35	8	5.80	9	6.52	6	4.35	7	5.07	6	4.35
17	Harrison	20	7.55	56	21.13	27	10.19	36	13.58	20	7.55	32	12.08
18	Jackson	2	2.06	9	9.28	2	2.06	8	8.25	1	1.03	10	10.31
19	Jefferson	5	3.97	25	19.84	11	8.73	15	11.90	9	7.14	18	14.29
20	Kanawha	86	7.28	145	12.27	85	7.19	98	8.30	64	5.41	115	9.73
21	Lewis	9	5.39	12	7.19	11	6.59	9	5.40	11	6.59	6	3.59
22	Lincoln	23	7.10	32	9.88	17	5.25	28	8.64	10	3.09	34	10.49
23	Logan	60	6.38	76	8.09	53	5.64	66	7.02	43	4.57	66	7.02
24	McDowell	94	14.31	131	19.94	94	14.31	103	15.68	89	13.55	108	16.44
25	Marion	11	6.29	21	12.00	11	6.29	13	7.43	6	3.43	20	11.43
26	Marshall	12	6.90	17	9.77	8	4.60	10	5.75	9	5.17	10	5.75
27	Mason	18	12.77	19	13.48	17	12.06	18	12.77	16	11.35	18	12.77

Table 3 (contd.)

		Culture Fair				Culture Foul				Total IQ			
		70 or below		71 - 80		70 or below		71 - 80		70 or below		71 - 80	
	County	N	%	N	%	N	%	N	%	N	%	N	%
28	Mercer	26	6.55	41	10.33	25	6.30	23	5.79	17	4.28	30	7.56
29	Mineral	20	7.19	20	7.19	3	1.08	7	2.52	5	1.80	15	5.40
30	Mingo	57	10.40	54	9.85	37	6.75	50	9.12	40	7.30	39	7.12
31	Monongalia	43	14.83	62	21.38	45	15.52	40	13.79	39	13.45	27	9.31
32	Monroe	10	7.04	13	9.15	9	6.34	10	7.04	9	6.34	11	7.75
33	Morgan	2	2.20	13	14.29	3	3.30	9	9.89	2	2.20	6	6.59
34	Nicholas	9	4.00	16	7.11	10	4.44	5	2.22	7	3.11	12	5.33
35	Ohio	19	8.64	23	10.45	14	6.36	18	8.18	13	5.91	19	8.64
36	Pendleton	8	5.97	12	8.96	9	6.72	7	5.22	9	6.72	6	4.48
37	Pleasants	2	2.90	1	1.45	4	5.80	2	2.90	2	2.90	1	1.45
38	Pocahontas	2	4.26	0	0.00	3	6.38	1	2.13	2	4.26	2	4.26
40	Putnam	5	4.76	12	11.43	4	3.81	8	7.62	3	2.86	6	5.71
41	Raleigh	49	5.97	112	13.64	34	4.14	41	4.99	34	4.14	52	6.33
42	Randolph	5	7.46	10	14.93	9	13.43	10	14.93	5	7.46	12	17.91
43	Ritchie	17	10.69	11	6.92	10	6.29	15	9.43	11	6.92	12	7.55
44	Roane	6	9.68	5	8.06	3	4.84	6	9.68	4	6.45	6	9.68
45	Summers	8	5.59	11	7.69	9	6.29	7	4.90	8	5.59	9	6.29
46	Taylor	5	9.09	6	10.91	6	10.91	9	16.36	4	7.27	7	12.61
47	Tucker	4	3.67	14	12.84	3	2.75	16	14.68	4	3.67	10	9.17
48	Tyler	5	4.46	10	8.93	5	4.46	7	6.25	4	3.57	10	8.93
49	Upshur	6	4.80	8	6.40	4	3.20	3	2.40	4	3.20	3	2.40
50	Wayne	20	3.41	62	10.58	17	2.90	25	4.27	18	3.07	30	5.12
51	Webster	7	4.52	14	9.03	11	7.10	7	4.52	6	3.87	8	5.16
52	Wetzel	11	7.64	31	21.53	10	6.94	12	8.33	10	6.94	11	7.64
53	Wirt	1	1.89	0	0.00	2	3.77	4	7.55	1	1.89	1	1.89
54	Wood	37	10.85	47	13.78	32	9.38	32	9.38	29	8.50	37	10.85
55	Wyoming	19	3.85	51	10.32	20	4.05	30	6.07	11	2.23	33	6.68
	State Totals	940	7.76	1531	12.64	884	7.30	1015	8.38	748	6.18	1074	8.87

Table 4

Means and Standard Deviations on the Indices of Mental Ability for Tests Administered During the Second Round

	County	N	% of initial sample	Age in Years		Total IQ		Culture-Fair IQ		Culture-Foul IQ	
				Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1	Barbour	62	52.5	6.27	.33	113.59	35.73	99.65	34.48	127.11	41.98
2	Berkeley	98	43.2	6.26	.30	98.99	32.69	96.45	33.35	103.60	37.74
4	Braxton	77	34.8	6.23	.26	114.90	33.34	113.22	34.54	117.23	36.28
5	Brooke	61	101.7	6.28	.34	90.29	28.55	86.26	27.33	98.24	29.31
7	Calhoun	81	97.6	6.30	.36	107.73	30.37	105.95	27.80	113.27	37.77
10	Fayette	503	138.6	6.27	.30	110.39	37.40	107.34	39.99	115.29	39.18
12	Grant	122	98.4	6.24	.31	114.74	39.32	113.68	40.17	116.02	41.63
13	Greenbrier	109	35.5	6.24	.30	109.00	36.18	103.54	38.97	115.68	36.87
14	Hampshire	84	57.9	6.25	.31	118.46	34.68	108.99	38.03	125.04	38.07
16	Hardy	70	50.7	6.26	.28	105.46	36.02	96.66	38.88	111.77	39.87
17	Harrison	321	121.1	6.27	.35	101.81	35.27	97.18	38.69	106.45	37.82
19	Jefferson	55	43.6	6.23	.32	107.82	31.79	106.92	40.60	105.87	31.47
20	Kanawha	507	42.9	6.27	.31	108.18	34.55	105.76	36.36	111.84	38.50
21	Lewis	69	41.3	6.26	.32	108.03	38.65	108.55	41.05	109.84	39.15
22	Lincoln	116	35.8	6.22	.31	124.82	44.08	125.10	44.06	125.93	47.64
23	Logan	546	58.1	6.23	.32	112.29	36.87	105.39	38.21	118.59	41.34
24	McDowell	250	38.1	6.34	.30	95.76	35.08	90.76	34.29	103.22	38.85
25	Marion	75	42.9	6.37	.29	98.34	33.75	95.73	38.46	101.75	33.75
26	Marshall	124	71.3	6.29	.33	113.40	31.43	103.67	37.56	118.81	35.31
27	Mason	50	28.2	6.24	.33	99.40	35.46	96.30	35.90	100.30	38.58
28	Mercer	140	35.3	6.38	.33	118.18	38.62	110.12	42.79	127.15	40.99
31	Monongalia	57	18.5	6.32	.49	115.93	34.35	113.39	34.93	118.91	34.35
32	Monroe	142	25.9	6.26	.32	117.57	36.07	115.21	37.99	119.52	40.06
33	Morgan	58	63.7	6.26	.32	113.33	31.13	110.36	32.13	116.80	32.42
34	Nicholas	114	50.7	6.24	.31	101.45	27.95	97.12	30.51	106.13	28.55
35	Ohio	90	40.9	6.25	.31	104.34	33.27	101.17	38.67	105.91	35.93

Table 4 (contd.)

County	N	% of initial sample	Age in Years		Total IQ		Culture-Fair IQ		Culture-Foul IQ	
			Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
36 Pendleton	124	92.5	6.28	.31	120.37	37.95	114.88	40.08	126.19	40.39
41 Raleigh	275	33.4	6.24	.32	109.63	35.52	99.03	34.80	121.72	39.41
43 Ritchie	55	34.6	6.24	.34	123.87	34.10	123.91	38.22	122.60	37.98
45 Summers	120	83.9	6.27	.34	131.04	47.17	122.65	50.70	140.81	45.83
49 Upshur	52	41.6	6.26	.26	126.02	24.04	119.25	29.99	133.43	27.36
50 Wayne	286	48.8	6.28	.33	118.67	35.03	111.94	36.83	125.29	37.52
51 Webster	120	77.4	6.25	.33	118.94	36.68	108.52	38.87	127.59	42.39
52 Wetzel	131	91.0	6.26	.35	104.39	36.17	95.34	36.29	114.33	41.49
55 Wyoming	199	36.5	6.24	.30	111.54	31.33	106.97	35.74	116.34	33.39
State Total	5,642	42.9	6.27	.32	110.75	36.68	105.62	38.84	116.32	39.64

Table 5

Change from Pre to Post-test

Comparing Total First and Second Round Groups

		Total IQ	Culture Fair IQ	Culture Foul IQ
1	Barbour	+ 6.3	- 3.2	+ 14.1
2	Berkeley	+ 1.7	- 0.6	+ 3.1
4	Braxton	+ 11.6	+ 14.2	+ 8.2
5	Brooke	- 4.2	- 1.4	- 3.4
7	Calhoun	+ 5.2	+ 6.4	+ 6.3
10	Fayette	+ 3.4	+ 3.1	+ 5.3
12	Grant	+ 6.6	+ 8.7	+ 4.0
13	Greenbrier	+ 2.9	+ 1.4	+ 3.8
14	Hampshire	+ 8.3	+ 3.4	+ 8.9
16	Hardy	- 5.6	- 12.3	+ 0.2
17	Harrison	+ 5.6	+ 0.8	+ 8.9
19	Jefferson	+ 6.6	+ 5.3	+ 4.2
20	Kanawha	+ 6.0	+ 5.9	+ 5.8
21	Lewis	+ 1.2	+ 1.0	+ 2.5
22	Lincoln	+ 14.3	+ 14.0	+ 14.8
23	Logan	- 0.9	- 5.7	+ 1.0
24	McDowell	+ 2.8	+ 0.4	+ 6.7
25	Marion	- 2.4	- 3.2	- 1.7
26	Marshall	+ 7.8	+ 3.0	+ 6.8
27	Mason	+ 0.5	- 2.3	+ 0.3
28	Mercer	+ 3.8	- 1.0	+ 7.8
31	Monongalia	+ 14.4	+ 14.9	+ 13.6
32	Monroe	+ 12.8	+ 13.5	+ 8.8
33	Morgan	+ 12.6	+ 11.5	+ 12.7
34	Nicholas	- 2.9	- 4.0	- 2.5
35	Ohio	+ 3.5	+ 3.6	+ 0.5
36	Pendleton	+ 12.4	+ 9.4	+ 14.9
41	Raleigh	+ 2.7	- 1.5	+ 6.4
43	Ritchie	+ 18.7	+ 18.2	+ 17.7
45	Summers	+ 5.7	+ 4.7	+ 5.7
49	Upshur	+ 22.1	+ 17.9	+ 26.4
50	Wayne	+ 12.1	+ 9.4	+ 12.5
51	Webster	+ 10.5	+ 3.8	+ 14.1
52	Wetzel	+ 3.0	- 0.7	+ 7.1
55	Wyoming	+ 17.7	+ 15.4	+ 17.3
State Total		+ 3.8	+ 7.1	+ 6.1

Table 6

Means and Standard Deviations for the Sub-tests of the Culture Fair Intelligence Test for the Second Round Samples

Test 2

		1 Substitution		2 Classification		3 Mazes		4 Selecting Named Objects		5 Following Directions		6 Wrong Pictures		7 Riddles		8 Similarities	
	County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1	Barbour	4.02	2.26	8.13	2.00	6.26	2.65	8.58	2.62	8.37	2.66	6.92	2.70	7.77	2.34	7.79	2.35
2	Berkeley	5.31	2.39	6.14	1.93	6.03	2.72	6.91	2.33	7.55	2.59	5.76	2.27	6.82	1.98	7.85	2.25
4	Braxton	6.48	2.92	7.74	2.15	6.47	3.16	7.90	2.42	8.39	2.39	6.22	2.09	7.23	2.19	7.90	2.41
5	Brooke	4.90	2.16	5.54	1.75	5.54	2.62	6.44	2.11	7.48	2.09	5.10	1.85	6.61	1.99	7.08	1.87
7	Calhoun	5.86	2.37	7.15	1.73	6.52	2.55	7.51	2.42	8.51	2.43	5.72	2.34	7.23	2.06	7.74	1.89
10	Fayette	6.03	3.63	7.34	2.57	6.11	3.29	7.56	2.79	7.95	2.87	6.27	2.65	7.19	2.34	7.82	2.51
12	Grant	6.41	3.43	7.38	2.22	7.25	3.23	7.58	2.41	7.92	2.74	6.51	2.78	7.48	2.08	7.81	2.41
13	Greenbrier	6.09	3.20	7.09	2.47	5.64	2.78	7.63	2.48	8.22	2.41	5.79	2.31	7.34	2.20	8.12	2.17
14	Hampshire	5.49	2.31	7.29	2.34	6.74	3.30	7.57	2.74	8.98	2.27	6.86	2.58	7.32	2.29	8.14	2.54
16	Hardy	4.94	2.62	7.07	2.23	6.07	3.15	7.26	2.35	8.40	2.37	6.13	2.37	7.17	2.05	7.86	1.98
17	Harrison	5.65	2.80	6.23	2.57	6.02	2.92	7.09	2.60	7.56	2.56	5.73	2.40	7.08	2.10	7.91	2.21
19	Jefferson	5.71	3.33	6.55	2.17	6.65	3.66	6.27	2.14	7.36	2.61	5.82	2.21	7.87	2.15	8.24	2.17
20	Kanawha	5.73	3.02	6.88	2.39	6.44	3.16	7.57	2.60	7.76	2.74	5.98	2.49	7.25	2.36	8.15	2.26
21	Lewis	7.03	3.63	6.22	2.80	5.75	3.27	7.12	2.83	7.71	2.78	5.58	2.54	6.86	2.39	7.90	2.19
22	Lincoln	7.97	3.76	7.75	2.47	6.88	3.45	7.78	2.84	8.66	2.51	6.92	2.89	7.69	2.74	8.03	2.53
23	Logan	5.76	2.93	7.35	2.41	6.21	2.83	7.78	2.57	8.14	2.69	6.21	2.65	7.41	2.38	7.75	2.45
24	McDowell	4.82	2.69	6.92	2.58	5.04	2.97	6.38	2.56	7.76	2.87	5.26	2.64	7.13	2.21	7.31	2.28
25	Marion	5.65	2.82	6.65	2.22	6.03	2.92	7.00	2.13	7.88	2.58	5.52	1.98	6.88	1.83	7.57	2.11
26	Marshall	4.81	2.55	7.26	2.01	7.27	2.92	8.03	2.25	8.65	2.51	5.92	2.01	7.27	2.06	7.90	2.10
27	Mason	5.26	2.10	5.96	2.26	6.44	3.39	7.04	2.37	7.30	2.62	5.26	1.96	6.98	2.30	7.90	2.19
28	Mercer	5.71	3.83	7.76	2.31	6.79	3.65	8.60	2.86	8.72	2.96	6.76	2.73	7.26	2.70	7.97	2.52
31	Monongalia	5.35	3.21	6.98	2.61	6.37	3.04	7.91	2.60	7.60	2.82	5.82	2.69	6.98	2.43	8.04	2.32
32	Monroe	6.69	2.93	7.17	2.31	6.94	3.25	7.89	2.47	8.37	2.66	6.08	2.39	7.64	2.22	8.32	2.15
33	Morgan	5.74	1.58	7.52	2.12	6.78	2.69	8.05	1.92	7.97	1.85	6.43	2.13	7.12	1.90	8.10	2.65
34	Nicholas	5.04	2.39	6.35	1.94	6.43	2.69	6.49	2.28	7.11	2.72	5.60	2.39	7.00	2.34	7.36	2.37
35	Ohio	6.02	2.86	6.50	2.15	6.28	2.80	6.69	2.80	7.84	2.72	5.60	2.33	6.84	2.24	7.63	2.33

Table 6 (contd.)

		1 Substitution		2 Classification		3 Mazes		4 Selecting Named Objects		5 Following Directions		6 Wrong Pictures		7 Riddles		8 Similarities	
	County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
36	Pendleton	6.52	3.09	7.13	2.65	7.26	2.89	8.18	2.22	8.52	2.76	6.88	2.87	7.87	2.12	8.29	2.37
41	Raleigh	4.31	2.43	7.56	2.46	5.89	3.28	7.81	2.74	9.18	2.57	5.96	2.76	7.22	2.34	7.89	2.62
43	Ritchie	7.31	2.80	7.98	2.05	7.25	3.27	8.25	1.84	8.29	2.63	6.56	2.29	7.75	1.87	8.55	1.86
45	Summers	7.11	3.65	7.79	2.77	6.78	3.61	8.29	2.97	9.63	2.55	7.86	3.15	8.31	2.69	8.72	2.89
49	Upshur	7.02	2.13	6.87	1.92	7.96	2.37	8.88	1.77	9.65	1.84	6.87	1.92	7.50	1.92	8.25	1.85
50	Wayne	5.88	2.75	7.70	2.25	6.63	2.72	8.39	2.20	8.53	2.32	6.60	2.32	7.90	2.11	8.55	1.94
51	Webster	5.89	2.73	7.82	2.55	6.84	2.87	8.20	2.52	9.25	2.33	6.52	2.75	7.63	2.43	7.55	2.47
52	Wetzel	5.01	2.50	7.17	2.93	5.50	3.25	7.73	2.32	7.63	3.70	6.18	2.53	7.48	2.17	7.53	2.30
55	Wyoming	6.12	3.00	6.91	2.13	6.88	2.84	7.74	2.24	7.88	2.37	5.97	2.38	7.56	2.07	7.98	1.84
	State Totals	5.78	3.07	7.13	2.44	6.38	3.13	7.61	2.60	3.16	2.71	6.14	2.58	7.35	2.29	7.91	2.33

Table 7

Mean IQs and Average Changes for Test-Retest Data of 18 Selected Samples with N over 100

		Total IQ			Culture Fair IQ			Culture Foul IQ		
County	N	First	Second	Difference	First	Second	Difference	First	Second	Difference
10 Fayette	239	110.7	105.9	- 4.6	107.5	100.1	- 7.4	115.3	114.4	- 4.6
12 Grant	116	108.9	115.4	6.5	106.0	114.4	8.4	112.8	117.4	4.6
13 Greenbrier	106	102.4	109.0	6.6	97.6	103.4	5.8	108.4	115.8	7.4
17 Harrison	215	95.2	98.5	3.3	94.9	92.4	- 2.5	96.4	105.1	8.7
20 Kanawha	446	103.9	109.9	6.0	101.7	107.2	5.5	107.8	113.6	5.8
23 Logan	487	106.3	113.9	7.6	103.1	107.0	3.9	111.0	120.2	9.2
24 McDowell	239	93.8	95.8	2.0	91.6	90.3	- 1.3	97.0	103.6	6.6
26 Marshall	118	104.3	112.9	8.6	100.2	102.8	2.6	109.7	118.8	9.1
28 Mercer	121	116.7	119.9	3.2	115.1	110.5	- 4.6	119.5	130.0	10.5
32 Monroe	136	105.9	119.2	13.3	101.5	116.2	14.7	111.0	121.5	10.5
36 Pendleton	122	109.6	120.2	10.6	106.8	114.7	7.9	112.8	126.1	12.3
41 Raleigh	237	107.5	111.2	3.7	99.8	100.5	.7	117.0	124.2	7.2
45 Summers	114	126.0	130.3	4.3	118.7	122.0	3.3	135.8	140.4	4.6
50 Wayne	268	107.7	119.1	11.4	103.9	112.8	8.9	112.4	125.6	13.2
51 Webster	113	110.3	119.8	9.5	106.6	109.9	3.3	115.3	128.3	13.0
52 Wetzel	116	103.6	104.5	.9	98.0	95.5	- 2.5	110.3	114.8	4.5
55 Wyoming	172	109.7	113.1	3.4	107.7	108.2	.5	113.1	117.5	4.4

Table 8

Test-retest Reliabilities for the Culture Fair Intelligence Test for 18 Selected Samples

County	N	Total IQ	Culture Fair IQ	Culture Foul IQ
10 Fayette	239	.77	.73	.77
12 Grant	116	.85	.74	.81
13 Greenbrier	106	.68	.68	.64
17 Harrison	215	.63	.61	.59
20 Kanawha	446	.62	.54	.58
23 Logan	487	.72	.58	.74
24 McDowell	239	.74	.68	.65
26 Marshall	118	.77	.65	.69
28 Mercer	121	.48	.45	.35
32 Monroe	136	.79	.67	.76
36 Pendleton	122	.63	.53	.61
41 Raleigh	237	.59	.53	.51
45 Summers	114	.81	.79	.77
50 Wayne	268	.66	.60	.65
51 Webster	113	.72	.60	.68
52 Wetzel	116	.72	.71	.60
55 Wyoming	172	.74	.73	.60

Table 9

Means and Standard Deviations of Color Sten Scores on the Pretty Pyramids

	Red		Orange		Yellow		Green		Blue	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	4.81	2.56	5.19	2.54	4.50	2.26	5.00	2.66	5.54	2.67
2 Berkeley	5.78	2.43	4.87	2.32	4.88	2.42	5.26	2.66	5.33	2.68
3 Boone	5.78	2.07	5.00	2.32	4.75	2.35	5.35	2.61	5.19	2.57
4 Braxton	5.32	2.28	5.47	2.48	4.69	2.33	5.48	2.71	5.62	2.47
5 Brooke	5.75	2.70	4.92	2.35	4.42	2.74	4.14	2.70	5.44	3.09
6 Cabell	5.30	2.26	5.11	2.40	4.87	2.34	5.36	2.55	5.54	2.59
8 Clay	5.92	2.77	4.56	2.25	4.21	2.47	5.17	2.84	5.32	3.03
10 Fayette	5.23	2.41	5.25	2.54	4.86	2.39	4.95	2.74	5.52	2.67
11 Gilmer	5.47	2.59	5.13	2.51	4.85	2.71	5.45	2.50	5.21	2.68
12 Grant	5.29	2.31	5.58	2.35	5.03	2.29	5.27	2.69	5.14	2.65
13 Greenbrier	5.38	2.53	5.21	2.53	4.94	2.66	4.91	2.76	5.27	2.72
14 Hampshire	5.54	2.36	5.69	2.36	4.63	2.34	5.42	2.68	5.80	2.46
15 Hancock	5.79	2.30	4.93	2.34	4.70	2.43	5.05	2.65	5.05	2.39
16 Hardy	5.69	2.33	5.88	2.54	4.69	2.46	4.86	2.61	5.29	2.51
17 Harrison	5.53	2.34	5.34	2.56	4.68	2.52	5.09	2.62	5.38	2.78
18 Jackson	5.73	2.53	5.08	2.46	4.73	2.32	5.16	2.68	5.06	2.67
20 Kanawha	5.46	2.35	5.29	2.44	4.77	2.38	5.10	2.59	5.18	2.61
21 Lewis	5.65	2.59	5.19	2.60	4.47	2.47	5.34	2.85	5.78	2.83
22 Lincoln	5.79	2.50	5.37	2.55	4.69	2.60	5.15	2.75	5.01	2.75
23 Logan	5.25	2.49	5.12	2.43	4.76	2.44	5.17	2.71	5.25	2.65
24 McDowell	5.43	2.44	5.45	2.72	4.90	2.60	5.05	2.76	4.90	2.68
25 Marion	5.47	2.35	5.65	2.64	4.62	2.43	5.05	2.77	5.01	2.64
26 Marshall	5.49	2.52	5.01	2.34	4.55	2.44	4.84	2.54	5.20	2.46
27 Mason	5.58	2.44	4.88	2.44	4.63	2.35	5.05	2.82	5.38	2.65
28 Mercer	5.55	2.56	5.04	2.52	4.70	2.48	4.76	2.71	4.95	2.62
29 Mineral	4.98	2.56	5.43	2.64	5.08	2.52	4.80	2.63	5.71	2.60
30 Mingo	5.31	2.41	5.22	2.52	5.08	2.58	5.39	2.84	5.02	2.67

Table 9 (contd.)

Means and Standard Deviations of Color Sten Scores on the Pretty Pyramids

	Red		Orange		Yellow		Green		Blue	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
31 Monongalia	5.24	2.35	5.24	2.48	4.81	2.35	5.09	2.79	5.61	2.63
32 Monroe	5.37	2.38	5.45	2.49	4.95	2.43	5.10	2.71	5.10	2.69
33 Morgan	5.37	2.52	4.94	2.48	4.72	2.46	5.31	2.72	5.18	2.77
34 Nicholas	5.32	2.34	5.54	2.42	4.46	2.29	5.16	2.51	5.25	2.48
35 Ohio	5.96	2.11	5.41	2.33	4.84	2.17	5.01	2.47	5.53	2.57
36 Pendleton	5.78	2.36	5.20	2.32	5.07	2.57	5.31	2.79	5.66	2.84
37 Pleasants	5.67	2.38	5.04	2.64	5.01	2.52	4.86	2.83	5.76	2.92
38 Pocahontas	5.32	2.23	5.37	2.52	4.71	1.95	5.61	2.37	4.82	2.17
40 Putnam	5.59	2.07	5.54	2.19	4.76	2.41	5.20	2.52	5.29	2.66
41 Raleigh	5.52	2.40	5.07	2.59	4.86	2.45	5.04	2.68	5.47	2.71
42 Randolph	5.27	2.34	5.76	2.59	4.59	2.93	4.51	2.59	5.38	2.77
43 Ritchie	5.63	2.29	5.39	2.34	4.42	2.20	5.36	2.73	5.66	2.47
44 Roane	5.10	2.54	5.68	2.46	4.56	2.23	5.00	2.51	4.89	2.66
45 Summers	5.43	2.39	5.38	2.46	4.99	2.72	5.19	2.71	5.08	2.82
46 Taylor	5.36	2.67	5.15	2.62	4.53	2.40	4.94	2.76	5.38	2.71
47 Tucker	5.82	2.45	5.79	2.27	4.58	2.57	4.84	2.60	5.10	2.61
48 Tyler	4.95	2.30	5.33	2.39	4.60	2.29	5.04	2.47	5.73	2.62
50 Wayne	5.64	2.34	5.50	2.52	5.01	2.41	5.10	2.64	5.28	2.76
51 Webster	4.74	2.25	5.79	2.15	3.91	2.50	5.00	2.39	5.07	2.48
52 Wetzel	5.03	2.27	5.91	2.53	5.00	2.62	4.48	2.67	5.17	2.51
53 Wirt	5.58	2.14	5.25	2.49	4.79	2.62	5.02	2.72	5.77	2.80
54 Wood	5.67	2.53	4.72	2.55	4.48	2.59	4.71	2.69	5.24	2.90
55 Wyoming	5.02	2.21	5.53	2.51	4.88	2.17	4.85	2.39	5.29	2.38

Table 9 (contd.)

Means and Standard Deviations of Color Sten Scores on the Pretty Pyramids

County	Purple		Brown		White		Grey		Black	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	5.90	2.58	5.54	2.11	5.76	1.97	4.99	1.91	5.80	2.13
2 Berkeley	5.01	2.50	5.34	2.16	5.72	1.88	4.86	1.66	5.72	2.15
3 Boone	4.97	2.32	5.49	2.00	5.67	1.74	4.98	1.73	6.14	2.25
4 Braxton	5.34	2.58	5.35	1.94	5.54	1.78	4.88	1.82	5.74	2.01
5 Brooke	4.44	2.76	5.31	2.26	5.44	1.83	4.95	2.17	6.37	2.43
6 Cabell	4.97	2.44	5.33	1.95	5.94	1.94	5.14	1.77	5.65	2.00
8 Clay	5.08	2.84	5.00	2.19	5.67	2.11	4.33	1.59	5.97	2.23
10 Fayette	5.41	2.55	5.29	2.14	5.89	1.92	5.02	1.93	5.83	2.18
11 Gilmer	5.07	2.48	5.57	1.98	5.81	1.85	4.84	1.69	5.47	2.09
12 Grant	5.56	2.55	5.39	2.17	5.90	1.82	4.93	1.74	5.23	1.97
13 Greenbrier	5.13	2.63	5.41	2.22	5.72	1.93	4.74	1.74	5.78	2.22
14 Hampshire	4.74	2.54	5.38	2.04	5.64	1.73	4.81	1.53	5.52	2.23
15 Hancock	5.18	2.60	5.39	1.80	6.29	1.87	4.82	1.59	5.41	1.97
16 Hardy	4.67	2.47	5.06	1.92	5.85	1.86	4.81	1.75	5.72	2.16
17 Harrison	5.01	2.54	5.25	2.12	5.89	1.81	4.90	1.80	5.77	2.14
18 Jackson	4.87	2.43	5.45	2.19	6.06	1.95	4.62	1.76	5.46	2.13
20 Kanawha	5.20	2.53	5.53	2.05	6.02	1.96	4.91	1.76	5.89	2.18
21 Lewis	4.77	2.69	5.08	2.24	5.75	1.81	4.68	1.79	5.41	2.04
22 Lincoln	4.61	2.67	5.37	2.19	5.71	1.97	4.72	1.79	5.56	2.09
23 Logan	5.23	2.52	5.46	2.12	5.94	1.96	4.91	1.76	5.83	2.17
24 McDowell	4.97	2.64	5.38	2.10	5.81	1.94	4.80	1.83	6.10	2.30
25 Marion	4.91	2.51	5.44	2.08	5.99	1.82	4.95	1.75	5.39	1.86
26 Marshall	5.38	2.41	5.48	1.98	6.01	2.03	4.92	1.77	5.90	2.13
27 Mason	5.02	2.62	5.18	1.91	6.13	2.00	4.71	1.72	6.04	2.17
28 Mercer	5.44	2.49	5.41	2.15	6.04	2.02	4.91	1.91	5.89	2.21
29 Mineral	5.05	2.34	5.34	2.11	6.01	2.00	5.09	1.97	5.67	2.06
30 Mingo	5.32	2.59	5.18	2.02	5.82	2.00	4.64	1.74	5.66	2.08

Table 9 (contd.)

Means and Standard Deviations of Color Sten Scores on the Pretty Pyramids

	Purple		Brown		White		Grey		Black	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
31 Monongalia	5.39	2.57	5.31	2.03	5.78	1.89	4.90	1.77	5.71	2.12
32 Monroe	5.22	2.50	5.27	1.99	6.01	2.07	4.99	1.87	5.52	2.04
33 Morgan	5.02	2.64	5.36	2.26	5.82	1.85	5.07	1.84	5.56	2.09
34 Nicholas	5.50	2.56	5.41	1.92	5.75	1.86	5.17	1.86	6.08	2.09
35 Ohio	4.93	2.52	5.79	2.05	5.67	1.67	5.16	1.74	5.53	1.87
36 Pendleton	4.75	2.32	5.17	2.15	5.84	1.88	4.58	1.64	5.49	2.15
37 Pleasants	5.20	2.54	5.19	2.25	5.67	1.86	4.54	1.48	5.39	2.11
38 Pocahontas	6.24	2.32	5.50	2.00	5.24	1.87	5.34	2.11	6.21	2.04
40 Putnam	4.83	2.26	5.16	1.99	6.02	1.96	5.08	1.79	5.93	2.01
41 Raleigh	5.28	2.63	5.31	2.12	5.80	1.89	4.70	1.77	5.77	2.23
42 Randolph	5.43	2.52	5.21	2.26	5.84	2.01	4.63	1.78	5.63	2.25
43 Ritchie	4.83	2.49	5.16	2.04	5.89	2.03	5.09	1.89	5.59	2.21
44 Roane	5.65	2.31	5.35	1.89	6.16	2.03	4.66	1.60	6.19	2.19
45 Summers	4.79	2.42	5.45	2.33	5.99	2.01	4.79	1.89	5.66	2.23
46 Taylor	5.51	2.26	5.62	2.13	5.68	2.01	4.74	1.73	5.87	2.16
47 Tucker	4.65	2.52	5.31	1.98	5.48	1.76	4.76	1.78	6.29	2.30
48 Tyler	5.32	2.65	5.82	1.99	5.82	1.77	4.91	1.59	5.80	2.13
50 Wayne	4.98	2.45	5.39	2.18	5.84	1.92	4.79	1.83	5.60	2.05
51 Webster	5.88	2.48	6.05	2.17	6.51	1.73	5.30	1.65	6.05	2.17
52 Wetzel	5.34	2.37	5.72	2.14	6.06	1.93	5.15	1.93	5.89	2.21
53 Wirt	4.43	2.38	4.89	1.77	5.81	1.83	4.91	1.79	6.08	2.09
54 Wood	5.17	2.60	5.42	2.20	5.97	2.03	4.78	1.81	5.90	2.16
55 Wyoming	5.50	2.48	5.55	1.90	6.32	1.98	5.10	1.83	6.34	2.15

Table 10

Means and Standard Deviations of Color Sten Scores on the Ugly Pyramids

	Red		Orange		Yellow		Green		Blue	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	5.29	2.05	6.04	1.83	6.00	1.66	5.52	2.05	6.05	2.08
2 Berkeley	5.51	1.97	6.35	2.09	6.21	1.71	5.59	2.13	6.18	2.00
3 Boone	5.38	2.00	6.07	2.12	6.03	1.78	5.54	2.37	6.07	2.08
4 Braxton	5.72	2.25	6.18	2.20	5.90	1.70	5.46	2.06	6.07	1.98
5 Brooke	5.34	2.61	6.00	2.24	5.71	1.78	5.27	2.53	5.92	2.45
6 Cabell	5.69	2.26	5.99	2.13	6.06	1.75	5.57	2.23	6.01	2.05
8 Clay	5.30	2.31	5.71	2.16	5.89	1.89	5.52	2.45	5.67	2.05
10 Fayette	5.51	2.11	6.19	2.14	5.92	1.77	5.38	2.06	6.15	2.14
11 Gilmer	5.91	1.91	6.16	2.00	5.86	1.40	5.54	2.06	5.93	1.89
12 Grant	5.63	2.26	6.17	2.10	5.81	1.62	5.13	2.11	6.24	2.11
13 Greenbrier	5.41	2.12	6.01	2.12	5.95	1.77	5.46	2.18	5.69	1.99
14 Hampshire	5.47	2.30	5.55	2.07	5.55	1.64	6.01	2.21	5.37	2.09
15 Hancock	6.08	2.30	6.30	2.27	5.87	1.62	5.61	2.37	5.03	2.16
16 Hardy	6.18	2.21	6.34	1.99	6.12	1.85	5.44	2.20	5.90	2.01
17 Harrison	5.88	2.25	6.20	2.11	5.89	1.64	5.38	2.16	5.78	1.94
18 Jackson	5.39	2.25	6.15	2.18	5.85	1.75	5.78	2.54	5.59	2.10
20 Kanawha	5.83	2.14	6.24	2.08	6.05	1.69	5.54	2.19	6.03	2.05
21 Lewis	5.55	2.35	6.26	2.19	5.60	1.55	5.31	2.50	5.84	2.17
22 Lincoln	5.55	2.13	6.04	2.07	6.04	1.81	5.50	2.21	5.88	2.10
23 Logan	5.55	2.15	6.21	2.06	6.02	1.68	5.52	2.20	6.00	1.99
24 McDowell	5.78	2.20	6.24	2.14	5.95	1.76	5.46	2.14	5.93	1.90
25 Marion	5.80	2.26	6.43	2.32	5.84	1.72	5.34	2.23	5.99	2.07
26 Marshall	5.88	2.15	6.13	2.08	5.79	1.59	5.22	2.20	5.77	2.02
27 Mason	5.35	2.31	5.95	2.18	5.85	1.64	5.13	2.21	5.91	2.10
28 Mercer	5.97	2.26	6.45	2.08	5.99	1.68	5.43	2.22	6.14	2.08
29 Mineral	5.30	2.15	5.86	2.06	5.82	1.72	5.50	2.23	5.78	2.07
30 Mingo	5.65	2.17	5.93	2.08	5.81	1.74	5.82	2.37	5.83	2.09

Table 10 (contd.)

Means and Standard Deviations of Color Sten Scores on the Ugly Pyramids

County	Red Mean	Red S.D.	Orange Mean	Orange S.D.	Yellow Mean	Yellow S.D.	Green Mean	Green S.D.	Blue Mean	Blue S.D.
31 Monongalia	5.37	2.21	5.89	2.14	5.62	1.67	5.48	2.27	5.73	2.05
32 Monroe	5.69	2.16	5.99	2.09	5.86	1.56	5.30	2.24	5.77	2.11
33 Morgan	5.48	2.11	6.27	1.94	5.97	1.59	5.68	2.29	6.09	1.90
34 Nicholas	5.85	2.04	6.50	2.09	5.99	1.63	5.59	2.03	6.06	1.89
35 Ohio	5.69	2.42	5.45	2.41	5.36	1.78	5.07	2.09	5.09	2.17
36 Pendleton	5.16	2.18	5.19	1.87	5.49	1.70	5.54	2.31	5.58	2.18
37 Pleasants	5.39	2.33	5.76	1.99	5.54	1.77	6.00	2.30	5.40	2.17
38 Pocahontas	5.79	2.56	5.82	2.11	5.76	1.78	5.39	2.41	5.55	2.17
40 Putnam	5.89	2.23	5.90	2.11	5.81	1.45	5.47	2.08	5.69	2.04
41 Raleigh	5.34	2.21	5.99	2.12	5.76	1.63	5.66	2.31	5.94	2.07
42 Randolph	6.43	1.92	6.97	2.24	6.00	1.63	5.32	2.17	6.41	1.95
43 Ritchie	5.50	2.19	5.77	2.12	5.84	1.86	5.46	2.31	5.65	2.04
44 Roane	5.90	2.08	7.02	1.96	6.08	1.54	5.32	2.23	6.34	1.85
45 Summers	5.69	2.13	6.10	2.27	6.07	1.79	5.39	2.23	5.70	2.03
46 Taylor	6.11	2.05	6.53	2.15	5.83	1.63	5.53	2.34	6.02	1.77
47 Tucker	5.60	2.49	6.50	2.14	5.55	1.44	4.48	1.73	5.47	1.77
48 Tyler	5.39	2.11	5.97	2.08	6.00	1.67	5.19	2.10	5.83	2.13
50 Wayne	5.66	2.28	6.21	2.12	5.95	1.78	5.65	2.24	5.68	2.05
51 Webster	5.72	2.09	6.79	2.06	5.67	1.54	5.60	2.13	5.81	2.16
52 Wetzel	5.68	1.98	6.16	1.96	5.95	1.70	5.13	2.07	5.82	2.07
53 Wirt	5.89	2.02	5.87	2.17	5.43	1.34	5.83	2.01	5.38	2.01
54 Wood	5.92	2.35	6.10	2.09	5.99	1.76	5.56	2.36	5.86	2.03
55 Wyoming	5.80	1.97	6.21	2.04	6.10	1.62	5.26	1.99	5.93	1.88

Table 10 (contd.)

Means and Standard Deviations of Color Sten Scores on the Ugly Pyramids

	Purple		Brown		White		Grey		Black	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	5.78	1.93	5.00	1.88	5.94	1.70	5.28	1.60	4.87	2.24
2 Berkeley	5.39	2.07	4.65	1.80	5.79	1.71	5.12	1.77	4.72	2.27
3 Boone	4.72	1.90	4.99	1.80	6.01	1.79	5.36	1.73	4.92	2.42
4 Braxton	5.22	2.14	4.83	1.90	5.70	1.68	5.20	1.84	4.73	2.32
5 Brooke	4.59	2.23	4.47	2.13	5.68	1.65	4.92	1.73	5.10	2.58
6 Cabell	5.27	2.17	4.64	1.89	5.81	1.70	5.03	1.70	4.83	2.41
8 Clay	5.08	2.16	5.08	2.19	5.98	1.77	4.85	1.65	4.91	2.42
10 Fayette	5.55	2.19	4.78	1.87	5.71	1.65	5.00	1.74	4.90	2.35
11 Gilmer	5.53	2.00	4.89	1.89	6.15	1.73	5.04	1.44	5.04	2.15
12 Grant	5.76	2.30	4.81	1.99	6.12	1.81	5.42	1.75	4.01	2.21
13 Greenbrier	5.69	2.24	4.75	1.99	5.92	1.78	4.89	1.71	4.89	2.45
14 Hampshire	5.58	2.48	5.03	2.02	5.75	1.83	5.14	1.81	4.64	2.33
15 Hancock	4.62	2.12	4.75	1.94	5.61	1.54	4.55	1.31	4.63	2.35
16 Hardy	5.08	2.04	4.56	1.72	5.85	1.66	5.06	1.46	4.79	2.27
17 Harrison	5.22	2.23	4.74	1.86	5.63	1.59	5.02	1.60	4.95	2.45
18 Jackson	5.21	2.43	4.13	1.77	5.70	1.80	4.86	1.57	4.72	2.52
20 Kanawha	5.20	2.12	4.66	1.87	5.81	1.69	4.92	1.61	4.75	2.39
21 Lewis	5.14	2.24	4.74	2.01	5.70	1.69	5.03	1.63	4.96	2.58
22 Lincoln	5.28	2.15	5.03	2.03	5.85	1.73	4.91	1.68	4.55	2.27
23 Logan	5.28	2.12	4.74	1.90	5.86	1.77	5.17	1.68	4.76	2.34
24 McDowell	5.26	2.12	4.82	1.94	5.90	1.78	4.96	1.64	4.80	2.32
25 Marion	5.46	2.23	4.74	1.92	5.62	1.74	4.81	1.55	4.55	2.23
26 Marshall	5.28	2.09	4.77	2.03	5.75	1.70	5.06	1.68	4.73	2.46
27 Mason	5.32	2.39	4.62	1.91	5.98	1.86	5.57	2.04	4.56	2.33
28 Mercer	5.41	2.15	4.48	1.85	5.77	1.74	4.98	1.66	4.38	2.28
29 Mineral	5.58	2.34	5.13	1.97	5.72	1.68	5.17	1.74	5.05	2.35
30 Mingo	5.52	2.18	4.89	2.01	5.73	1.75	5.01	1.72	4.54	2.23

Table 10 (contd.)

Means and Standard Deviations of Color Sten Scores on the Ugly Pyramids

	Purple		Brown		White		Grey		Black	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
31 Monongalia	5.43	2.18	5.03	2.13	5.96	1.87	4.86	1.64	5.06	2.35
32 Monroe	5.23	2.27	5.04	2.27	5.85	1.76	5.04	1.72	4.72	2.48
33 Morgan	5.23	1.99	4.68	1.93	5.83	1.69	5.03	1.71	4.68	2.33
34 Nicholas	5.52	2.05	4.72	1.71	5.88	1.56	5.09	1.53	4.60	2.29
35 Ohio	4.69	2.08	5.67	2.17	5.59	1.91	5.17	1.98	5.36	2.42
36 Pendleton	5.21	2.24	4.94	2.26	5.83	1.96	5.25	2.01	5.49	2.55
37 Pleasants	5.71	2.22	5.09	1.97	5.79	1.89	5.49	1.95	4.81	2.39
38 Pocahontas	5.55	2.67	5.13	2.15	5.26	1.82	4.71	1.73	4.24	2.21
40 Putnam	5.20	2.11	5.02	2.00	6.03	1.87	5.48	1.74	4.68	2.15
41 Raleigh	5.27	2.19	4.86	2.01	5.86	1.77	5.19	1.81	4.78	2.41
42 Randolph	5.37	1.88	4.48	1.71	5.22	1.20	4.90	1.39	4.38	2.05
43 Ritchie	5.25	2.13	4.86	2.06	5.96	1.93	5.31	1.83	4.95	2.37
44 Roane	5.79	2.02	4.11	1.57	6.21	1.76	4.90	1.64	4.45	2.29
45 Summers	5.32	2.12	5.12	2.25	5.73	1.70	4.95	1.70	4.69	2.21
46 Taylor	5.70	2.17	4.60	1.86	6.00	1.69	5.17	1.80	4.26	2.09
47 Tucker	4.97	2.08	4.76	2.11	5.82	2.00	5.74	1.92	5.31	2.49
48 Tyler	5.24	2.06	4.63	1.99	5.66	1.60	4.90	1.57	5.33	2.70
50 Wayne	5.24	2.17	4.78	1.92	5.87	1.77	5.20	1.80	4.80	2.29
51 Webster	5.95	2.42	4.35	1.83	6.21	1.90	4.95	1.74	4.23	2.13
52 Wetzel	5.69	2.08	4.91	1.94	5.97	1.67	5.18	1.76	4.89	2.35
53 Wirt	5.57	2.07	4.79	1.86	5.96	1.82	5.47	1.75	5.11	2.35
54 Wood	5.04	2.20	4.65	1.94	5.83	1.86	5.00	1.79	4.59	2.30
55 Wyoming	5.43	2.03	4.85	1.91	5.99	1.58	4.97	1.51	4.99	2.29

Table 11

Extreme Scores (Sten 9 & 10) on Pretty Pyramids

County	Total (N) Sample	Purple		Brown		White		Grey		Black		Red	
		N	%	N	%	N	%	N	%	N	%	N	%
1 Barbour	123	23	18.6	16	13.0	17	13.8	12	9.7	13	10.5	9	7.3
2 Berkeley	228	21	9.2	29	12.7	26	11.4	10	4.3	32	14.0	33	14.4
3 Boone	114	7	6.1	13	11.4	11	9.6	6	5.2	22	19.2	11	9.6
4 Braxton	204	29	14.2	16	7.8	17	8.3	13	6.3	24	11.7	24	11.7
5 Brooke	59	5	8.4	9	15.2	6	10.1	7	11.8	16	27.1	8	13.5
6 Cabell	535	48	8.9	50	9.3	81	15.1	38	7.1	60	11.2	52	9.7
8 Clay	96	17	17.7	12	12.5	14	14.5	3	3.1	21	21.8	10	10.4
10 Fayette	320	44	13.7	39	12.1	40	12.5	26	8.1	50	15.6	33	10.3
11 Gilmer	96	10	10.4	8	8.3	12	12.5	5	5.2	13	13.5	14	14.5
12 Grant	119	18	15.1	16	13.4	17	14.2	6	5.0	7	5.8	10	9.1
13 Greenbrier	310	39	12.5	35	11.2	44	14.1	16	5.1	54	17.4	33	10.6
14 Hampshire	144	14	9.7	13	9.0	13	9.0	4	2.7	25	17.3	21	14.5
15 Hancock	76	9	11.8	5	6.5	10	13.1	2	2.6	9	11.8	9	11.8
16 Hardy	144	12	8.3	11	7.7	17	11.8	7	4.8	21	14.5	23	15.9
17 Harrison	334	32	9.5	36	10.7	36	10.7	22	6.5	51	15.2	45	13.4
18 Jackson	106	10	9.4	13	12.2	21	19.8	5	4.7	14	13.2	8	7.5
20 Kanawha	1094	131	11.9	127	11.6	188	17.1	59	5.3	178	16.2	128	11.7
21 Lewis	159	15	9.4	18	11.3	18	11.3	9	5.6	20	12.5	26	16.3
22 Lincoln	318	31	9.7	37	11.6	49	15.4	19	5.9	42	13.2	39	12.2
23 Logan	1001	114	11.3	116	11.5	147	14.6	52	5.1	151	15.0	112	11.1
24 McDowell	528	62	11.7	56	10.6	76	14.3	30	5.6	108	20.4	58	10.9
25 Marion	170	21	12.3	17	10.0	24	14.1	9	5.2	12	7.0	21	12.3
26 Marshall	166	18	10.8	19	11.4	28	16.8	10	6.0	25	15.0	20	12.0
27 Mason	136	14	10.2	8	5.8	23	16.9	6	4.4	24	17.6	12	8.8
28 Mercer	513	67	13.0	62	12.0	89	17.3	37	7.2	81	15.7	63	12.2
29 Mineral	276	24	8.6	26	9.4	48	17.3	28	10.1	38	13.7	17	6.1
30 Mingo	494	70	14.1	44	8.9	69	13.9	22	4.4	68	13.7	48	9.7

Table 11 (contd.)

Extreme Scores (Sten 9 & 10) on Pretty Pyramids

County	Total (N) Sample	Purple		Brown		White		Grey		Black		Red	
		N	%	N	%	N	%	N	%	N	%	N	%
31 Monongalia	271	36	13.2	25	9.2	35	12.9	15	5.5	38	14.0	23	8.4
32 Monroe	143	18	12.5	10	6.9	21	14.6	10	6.9	18	12.5	16	11.1
33 Morgan	90	11	12.2	10	11.1	13	14.4	7	7.7	14	15.5	9	10.0
34 Nicholas	210	33	15.7	18	8.5	26	12.3	18	8.5	28	13.3	18	8.5
35 Ohio	75	8	10.6	10	13.3	4	5.3	4	5.3	7	9.3	16	21.3
36 Pendleton	122	5	4.0	14	11.4	19	15.5	6	4.9	18	14.7	13	10.6
37 Pleasants	70	9	12.8	7	10.0	6	8.5	1	1.4	9	12.8	6	8.5
38 Pocahontas	38	9	23.6	3	7.8	4	10.5	5	13.1	5	13.1	3	7.8
40 Putnam	114	6	5.2	8	7.0	18	15.7	7	6.1	14	12.2	21	18.4
41 Raleigh	580	77	13.2	61	10.5	73	12.5	27	4.6	101	17.4	70	12.0
42 Randolph	63	11	17.4	10	15.8	10	15.8	3	4.7	9	14.2	7	11.1
43 Ritchie	148	12	8.1	14	9.4	23	15.5	12	8.1	19	12.8	16	10.8
44 Roane	62	6	9.6	4	6.4	14	22.5	1	1.6	15	24.1	4	6.4
45 Summers	150	12	8.0	23	15.3	23	15.3	11	7.3	22	14.6	14	9.3
46 Taylor	53	6	11.3	5	9.4	7	13.2	4	7.5	8	15.0	7	13.2
47 Tucker	62	3	4.8	6	9.6	6	9.6	4	6.4	15	24.1	13	20.9
48 Tyler	103	19	18.4	13	12.6	12	11.6	4	3.8	15	14.5	9	8.7
50 Wayne	500	47	9.4	60	12.0	63	12.6	32	6.4	56	11.2	55	11.0
51 Webster	43	6	13.9	8	18.6	8	18.6	3	6.9	10	23.2	2	4.6
52 Wetzel	143	14	9.7	22	15.3	20	13.9	16	11.1	23	16.0	18	12.5
53 Wirt	53	5	9.4	1	1.8	8	15.0	3	5.6	9	16.9	8	15.0
54 Wood	306	33	10.7	36	11.7	50	16.3	17	5.5	46	15.0	40	13.0
55 Wyoming	234	33	14.1	23	9.8	47	20.0	17	7.2	44	18.8	21	8.9
Totals	11,496	1324	11.5	1242	10.8	1651	14.3	690	6.0	1722	14.9	1296	11.2

Table 12

Means and Standard Deviations of Color Sten Scores on the Pretty Pyramids for the Second Round Tests

	Red		Orange		Yellow		Green		Blue	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	5.31	2.53	5.57	2.74	4.86	2.61	4.65	2.84	5.64	2.82
2 Berkeley	5.08	2.54	5.16	2.57	4.94	2.61	5.23	2.68	5.48	2.90
3 Boone	5.76	2.50	5.13	2.61	4.90	2.75	4.82	2.44	5.29	2.64
4 Braxton	5.24	2.41	5.51	2.53	5.32	2.74	4.92	2.73	6.06	2.84
5 Brooke	5.48	3.07	4.48	2.90	4.77	2.82	3.98	2.89	5.00	3.42
10 Fayette	5.47	2.58	5.43	2.83	4.99	2.69	4.79	2.82	5.51	2.78
12 Grant	5.77	2.44	5.14	2.58	4.90	2.43	5.19	2.62	5.65	2.74
13 Greenbrier	5.23	2.69	5.80	2.87	5.52	2.74	4.64	2.85	5.19	2.83
14 Hampshire	5.75	2.84	5.40	2.80	4.67	2.77	5.02	3.01	5.19	2.78
16 Hardy	6.43	2.41	5.20	2.70	4.59	2.64	4.63	2.50	4.53	2.70
17 Harrison	5.36	2.57	5.24	2.71	4.69	2.63	5.10	2.79	5.65	2.80
20 Kanawha	5.43	2.56	5.59	2.65	4.77	2.71	5.00	2.89	5.37	2.85
22 Lincoln	5.35	2.58	5.55	2.77	4.74	2.67	4.96	2.87	5.39	2.99
23 Logan	5.45	2.67	5.01	2.77	4.78	2.76	4.71	2.88	5.30	2.99
24 McDowell	5.49	2.66	5.44	2.82	5.15	2.73	5.13	2.69	5.08	2.73
25 Marion	5.49	2.57	4.78	2.78	4.90	2.80	4.48	2.70	6.08	2.96
26 Marshall	5.76	2.44	5.43	2.79	4.17	2.56	4.59	2.73	5.48	3.00
28 Mercer	5.55	2.80	4.79	2.79	4.72	2.71	4.81	2.79	4.89	2.96
32 Monroe	5.47	2.69	4.74	2.91	5.16	2.88	4.53	2.98	5.10	3.10
34 Nicholas	4.71	2.62	5.61	2.93	4.55	2.50	4.54	2.79	6.04	2.71
36 Pendleton	5.06	2.62	6.11	2.69	5.49	2.78	4.89	2.73	5.74	2.77
41 Raleigh	5.59	2.54	4.86	2.54	5.02	2.57	5.29	2.80	5.22	2.73
45 Summers	5.25	2.69	5.13	2.76	4.68	2.57	5.07	3.05	5.74	3.06
50 Wayne	5.58	2.51	5.30	2.66	4.52	2.63	5.02	2.82	5.34	2.94
52 Wetzel	4.98	2.50	5.45	2.76	4.87	2.68	5.08	2.86	5.15	2.89
55 Wyoming	5.27	2.49	5.32	2.56	5.24	2.60	4.66	2.61	5.55	2.71

Table 12 (contd.)

Means and Standard Deviations of Color Sten Scores on the Pretty Pyramids for the Second Round Tests

	Purple		Brown		White		Grey		Black	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	5.38	2.91	4.74	1.93	5.12	1.91	4.65	1.59	5.50	2.09
2 Berkeley	4.96	2.67	5.26	2.34	5.65	1.85	4.69	1.71	5.91	2.21
3 Boone	4.84	2.41	5.35	1.99	5.46	1.88	5.06	1.91	5.94	2.33
4 Braxton	4.61	2.71	5.23	2.29	5.62	2.09	4.75	1.69	5.20	1.93
5 Brooke	4.75	2.82	4.52	2.03	5.82	2.25	4.66	2.33	5.50	2.55
10 Fayette	4.90	2.63	5.06	2.13	5.90	2.16	5.05	2.04	5.30	2.22
12 Grant	4.65	2.64	4.71	1.85	6.06	1.92	5.02	1.60	5.56	2.17
13 Greenbrier	5.03	2.86	4.94	2.24	5.73	1.86	4.77	1.82	5.52	2.21
14 Hampshire	4.52	2.67	5.41	2.30	5.33	1.68	4.78	1.74	5.18	2.14
16 Hardy	4.84	2.59	4.92	2.04	5.92	1.91	5.00	1.58	5.78	2.14
17 Harrison	4.84	2.59	5.11	2.20	5.77	2.01	5.08	1.94	5.17	2.04
20 Kanawha	4.81	2.66	5.04	2.18	5.85	2.02	4.80	1.83	5.39	2.15
22 Lincoln	4.49	2.70	5.30	2.47	5.86	2.27	4.68	1.88	5.41	2.18
23 Logan	4.80	2.77	5.13	2.29	5.73	2.05	4.78	1.83	5.53	2.22
24 McDowell	4.66	2.61	5.32	2.11	5.65	2.00	4.68	1.78	5.53	2.12
25 Marion	4.36	2.72	5.08	2.29	5.92	1.89	4.79	1.87	5.88	2.22
26 Marshall	4.38	2.68	4.66	1.86	5.67	2.25	4.47	1.66	5.16	2.03
28 Mercer	5.31	2.83	5.06	2.02	5.80	2.02	4.86	1.90	5.92	2.30
32 Monroe	5.13	2.76	4.75	2.17	5.84	2.36	4.85	2.01	5.27	2.18
34 Nicholas	4.85	2.67	5.19	2.25	5.92	2.08	4.90	1.96	5.77	2.17
36 Pendleton	4.83	2.63	4.78	2.14	5.52	1.91	4.61	1.88	5.11	2.20
41 Raleigh	4.92	2.72	5.15	2.18	5.88	2.06	4.74	1.83	5.54	2.14
45 Summers	4.64	2.64	4.73	2.28	5.87	2.03	4.87	2.05	5.35	2.32
50 Wayne	4.55	2.53	5.22	2.24	6.07	2.11	4.92	1.94	5.47	2.13
52 Wetzel	5.11	2.68	5.11	2.07	6.01	2.03	5.18	2.00	5.57	2.16
55 Wyoming	4.94	2.43	5.26	2.09	5.74	1.93	4.90	1.68	5.49	2.12

Table 13

Means and Standard Deviations of Sten Scores on Ugly Pyramids for the Second Round Tests

County	Red Mean	Red S.D.	Orange Mean	Orange S.D.	Yellow Mean	Yellow S.D.	Green Mean	Green S.D.	Blue Mean	Blue S.D.
1 Barbour	5.08	1.88	6.27	2.09	5.96	1.66	5.24	2.21	6.05	2.12
2 Berkeley	5.19	2.12	6.26	2.17	5.82	1.66	5.78	2.18	5.92	2.09
3 Boone	5.26	2.37	6.04	2.06	5.91	1.72	5.65	2.29	6.10	2.28
4 Braxton	5.75	2.51	5.69	2.43	5.31	1.44	6.24	2.42	5.20	2.09
5 Brooke	4.75	2.31	5.27	1.86	5.98	1.99	5.57	2.69	5.41	2.20
10 Fayette	5.39	2.19	5.94	2.10	5.76	1.69	5.57	2.33	5.84	2.14
12 Grant	5.39	2.20	6.15	2.11	5.75	1.61	5.56	2.23	6.16	2.18
13 Greenbrier	5.73	2.04	6.01	2.09	5.90	1.57	5.73	2.14	5.79	1.90
14 Hampshire	5.13	2.40	5.80	2.25	5.76	1.85	5.80	2.54	5.23	2.11
16 Hardy	6.06	1.95	6.45	2.14	5.90	1.73	5.10	1.99	5.84	2.11
17 Harrison	5.67	2.18	6.21	2.13	5.77	1.60	5.85	2.25	6.08	2.17
20 Kanawha	5.80	2.22	6.47	2.16	5.86	1.65	5.59	2.17	5.97	2.06
22 Lincoln	5.39	2.28	5.97	2.34	5.50	1.62	5.48	2.40	5.35	1.94
23 Logan	5.51	2.28	6.10	2.18	5.98	1.82	5.41	2.32	5.84	2.07
24 McDowell	5.93	2.31	5.97	2.07	5.97	1.73	5.33	2.23	5.78	2.07
25 Marion	6.08	2.07	6.21	2.05	5.60	1.48	5.73	2.34	6.14	2.03
26 Marshall	5.36	2.54	6.00	2.14	5.76	1.72	4.93	2.17	5.83	2.28
28 Mercer	5.37	2.28	6.02	2.26	5.80	1.74	5.90	2.61	5.82	2.22
32 Monroe	5.09	2.24	5.73	2.18	5.89	1.66	5.24	2.21	5.65	2.15
34 Nicholas	5.29	2.00	6.49	2.24	5.89	1.62	5.30	2.31	6.08	2.13
36 Pendleton	4.75	2.19	5.88	2.20	5.65	1.81	6.09	2.43	5.30	2.09
41 Raleigh	5.31	2.25	5.98	2.15	5.87	1.74	5.86	2.41	5.56	1.99
45 Summers	5.38	2.32	5.69	2.18	5.50	1.58	5.69	2.33	5.40	2.06
50 Wayne	5.72	2.24	6.19	2.17	5.89	1.65	5.97	2.24	5.70	1.97
52 Wetzel	5.43	2.25	6.06	2.10	5.74	1.68	5.64	2.26	5.75	2.05
55 Wyoming	6.07	2.23	6.37	2.06	5.98	1.70	5.44	2.21	6.15	1.98

Table 13 (contd.)

Means and Standard Deviations of Sten Scores
on Ugly Pyramids for the Second Round Tests

	Purple		Brown		White		Grey		Black	
County	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Barbour	5.78	2.17	4.95	1.96	5.73	1.47	5.31	1.68	4.95	2.27
2 Berkeley	5.12	2.01	4.40	1.98	5.83	1.69	5.29	1.89	5.19	2.44
3 Boone	4.77	2.00	4.73	1.97	5.69	1.63	5.26	1.84	5.16	2.31
4 Braxton	5.37	2.37	4.97	2.08	5.45	1.52	5.20	1.85	4.85	2.35
5 Brooke	5.21	2.53	4.77	2.43	5.84	2.10	4.93	1.77	5.09	2.69
10 Fayette	5.31	2.26	4.74	2.02	5.80	1.82	5.11	1.78	5.10	2.45
12 Grant	5.34	2.22	4.60	1.95	6.02	1.87	5.34	1.81	4.39	2.32
13 Greenbrier	5.76	1.99	5.17	1.94	5.57	1.52	4.97	1.56	5.03	2.26
14 Hampshire	5.63	2.38	4.73	1.98	5.76	1.77	4.99	1.77	5.06	2.75
16 Hardy	5.16	1.88	5.04	1.85	5.63	1.73	4.75	1.27	4.73	2.40
17 Harrison	5.17	2.16	4.75	1.83	5.81	1.72	4.98	1.54	4.83	2.39
20 Kanawha	5.27	2.13	4.66	1.91	5.70	1.67	4.92	1.56	4.80	2.32
22 Lincoln	5.25	2.39	5.21	2.18	6.10	1.94	5.03	1.94	4.87	2.34
23 Logan	5.36	2.24	4.59	2.01	5.77	1.82	5.05	1.73	4.83	2.49
24 McDowell	5.54	2.29	4.79	2.00	5.86	1.81	4.91	1.69	4.53	2.32
25 Marion	4.85	2.08	4.97	1.90	5.55	1.61	5.05	1.59	4.97	2.29
26 Marshall	4.81	2.23	4.83	2.01	5.14	1.37	4.74	1.58	5.50	2.85
28 Mercer	4.82	2.17	4.52	2.20	5.48	1.54	4.67	1.62	4.88	2.75
32 Monroe	5.74	2.15	4.55	2.10	6.13	1.86	5.13	1.84	5.14	2.59
34 Nicholas	5.63	2.06	4.65	1.71	5.98	1.79	5.04	1.79	4.76	2.36
36 Pendleton	5.57	2.17	5.00	2.10	5.69	1.82	5.32	1.87	5.34	2.56
41 Raleigh	4.98	2.17	5.01	2.00	5.60	1.72	4.97	1.75	5.19	2.50
45 Summers	5.22	2.16	5.03	2.19	5.44	1.62	4.85	1.68	5.68	2.54
50 Wayne	5.25	2.17	4.70	1.88	5.85	1.72	5.07	1.73	4.76	2.26
52 Wetzel	5.25	2.04	4.65	2.04	5.98	1.67	5.10	1.75	5.09	2.54
55 Wyoming	5.41	2.24	4.36	1.85	6.08	1.76	4.60	1.37	4.43	2.27

Table 14

Mean Difference on the Pretty Pyramid Color Scores Between First and Second Test Administration for Twenty-six Selected Samples

County	Red	Orange	Yellow	Green	Blue	Purple	Brown	White	Gray	Black
1 Barbour	+.50*	+.38	+.36	-.35	+.10	-.52*	-.80*	-.64*	-.34	-.30
2 Berkeley	-.70*	+.29	+.06	-.03	+.15	-.05	-.08	-.07	-.17	+.19
3 Boone	-.02	+.13	+.15	-.53*	+.10	-.13	-.14	-.21	+.08	-.20
4 Braxton	-.08	+.04	+.63*	-.56*	+.44	-.73*	-.12	+.08	-.13	-.54*
5 Brooke	-.27	-.44	+.35	-.16	-.44	+.31	-.79*	+.38	-.29	-.87*
10 Fayette	+.24	+.18	+.13	-.16	-.01	-.51*	-.23	+.01	+.03	-.53*
12 Grant	+.48	-.44	-.13	-.08	+.51*	-.91*	-.68*	+.16	+.09	+.33
13 Greenbrier	-.15	+.59*	+.58*	-.27	-.08	-.10	-.47	+.01	+1.03	-.26
14 Hampshire	+.21	-.29	+.04	-.40	-.61	-.24	+.03	-.31	-.03	-.39
16 Hardy	+.74*	-.68*	-.10	-.23	-.76*	+.17	-.14	+.07	+.19	+.06
17 Harrison	-.17	-.10	+.01	+.01	+.27	-.17	-.14	-.12	+.18	-.60*
20 Kanawha	-.03	+.30	0	-.10	+.19	-.39	-.49	-.18	-.11	-.50*
22 Lincoln	-.44	+.18	+.05	-.19	+.38	-.12	-.07	+.15	-.04	-.15
23 Logan	+.20	-.11	+.02	-.46	+.05	-.43	-.33	-.21	-.13	-.30
24 McDowell	+.06	-.01	+.25	+.08	+.18	-.31	-.06	-.17	-.12	-.57
25 Marion	+.02	-.87*	+.28	-.57*	+1.07*	-.55*	-.36	-.07	-.16	+.49
26 Marshall	+.27	+.42*	-.38	-.25	+.28	-1.00*	-.82*	-.34	-.45	-.30
28 Mercer	0	-.25	+.02	+.05	-.06	-.13	-.35	-.24	-.05	+.03
32 Monroe	+.10	-.71*	+.21	-.57*	0	-.09	-.52*	-.17	-.14	-.25
34 Nicholas	-.61*	+.07	+.09	-.62*	+.77*	-.65*	-.22	+.17	-.27	-.31
36 Pendleton	-.72*	+.91*	+.42	-.42	+.08	+.08	-.39	-.32	+.03	-.38
41 Raleigh	+.07	-.21	-.84*	-.25	-.25	-.36	-.16	+.08	+.04	-.23
45 Summers	-.18	-.25	-.31	-.12	+.66*	-.15	-.72*	-.12	+.08	-.31
50 Wayne	-.06	-.20	-.49	-.08	+.06	-.43	-.17	+.23	+.13	-.13
52 Wetzel	-.05	-.46	-.13	+.60*	-.02	-.23	-.61*	-.05	-.02	-.32
55 Wyoming	+.25	-.21	+.36	-.19	-.26	-.56*	-.29	-.58*	-.20	-.85*

Note: A minus sign indicates drop in sten score from first to second test administration. All starred differences are significant at or beyond the five per cent level of confidence.

Table 15

Mean Difference on the Ugly Pyramid Color Scores Between First and Second Test Administration for Twenty-six Selected Samples

County	Red	Orange	Yellow	Green	Blue	Purple	Brown	White	Gray	Black
1 Barbour	-.21	+.23	-.04	-.28	.00	.00	-.05	-.21	+.03	+.08
2 Berkeley	-.32	-.09	-.39	+.19	-.26	-.27	-.25	+.04	+.17	+.37
3 Boone	-.12	-.03	-.12	+.11	+.03	+1.05*	-.26	-.32	-.10	+.24
4 Braxton	+.03	-.49	-.59*	+.78*	-.87	+.15	+.14	-.25	.00	+1.11*
5 Brooke	-.59*	-.73*	+.27	+.30	-.51	+.62*	+.30	+.16	+.01	-.01
10 Fayette	-.12	-.25	-.16	+.19	-.31	-.24	-.04	+.09	+.11	+.20
12 Grant	-.24	-.02	-.06	+.43	-.08	-.42	-.21	-.10	-.08	+.38
13 Greenbrier	+.32	0	-.05	+.27	+.10	+.07	+.42	-.35	+.08	+.14
14 Hampshire	-.34	+.25	-.21	-.21	-.14	+.05	-.30	+.01	-.15	+.42
16 Hardy	-.12	+.11	-.22	-.34	-.06	+.08	+.48	-.22	-.31	-.06
17 Harrison	-.21	+.01	-.12	+.47	+.30	-.05	+.01	+.18	-.04	-.12
20 Kanawha	-.03	+.23	-.19	+.05	-.06	+.07	0	-.11	0	+.05
22 Lincoln	-.16	-.07	-.54*	-.02	-.53	-.03	+.18	+.25	+.12	+.32
23 Logan	-.04	-.11	-.04	-.11	-.16	+.08	-.15	-.09	-.12	+.07
24 McDowell	+.15	-.27	+.02	-.13	-.15	+.28	-.03	-.04	-.05	-.27
25 Marion	+.28	-.22	-.24	+.39	+.15	-.61*	+.23	-.07	+.24	+.42
26 Marshall	-.52*	-.13	-.03	-.29	+.06	-.47	+.06	-.61*	-.32	+.77*
28 Mercer	-.60*	-.43	-.19	+.47	-.32	-.59*	+.04	-.29	-.31	+.50*
32 Monroe	-.60*	-.26	+.03	-.06	-.12	+.51*	-.49	+.28	+.09	+.42
34 Nicholas	-.56*	-.01	-.10	-.29	+.02	+.11	-.06	+.10	-.05	+.16
36 Pendleton	-.41	+.69*	-.16	+.55*	-.28	+.36	+.06	-.14	+.07	-.15
41 Raleigh	-.03	-.01	+.11	+.20	-.38	-.31	+.15	-.26	-.22	+.41
45 Summers	-.31	-.41	-.57*	+.30	-.30	-.10	-.09	-.29	-.10	+.94*
50 Wayne	+.06	-.02	-.06	+.32	+.02	+.01	-.08	-.02	-.13	-.04
52 Wetzel	-.25	-.10	-.21	+.51*	-.07	-.44	-.26	+.01	-.08	+.20
55 Wyoming	+.27	+.16	-.12	+.18	+.22	-.02	-.49	+.09	-.37	-.56*

Note: A minus sign indicates drop in sten score from first to second test administration. All starred differences are significant at or beyond the five per cent level of confidence.